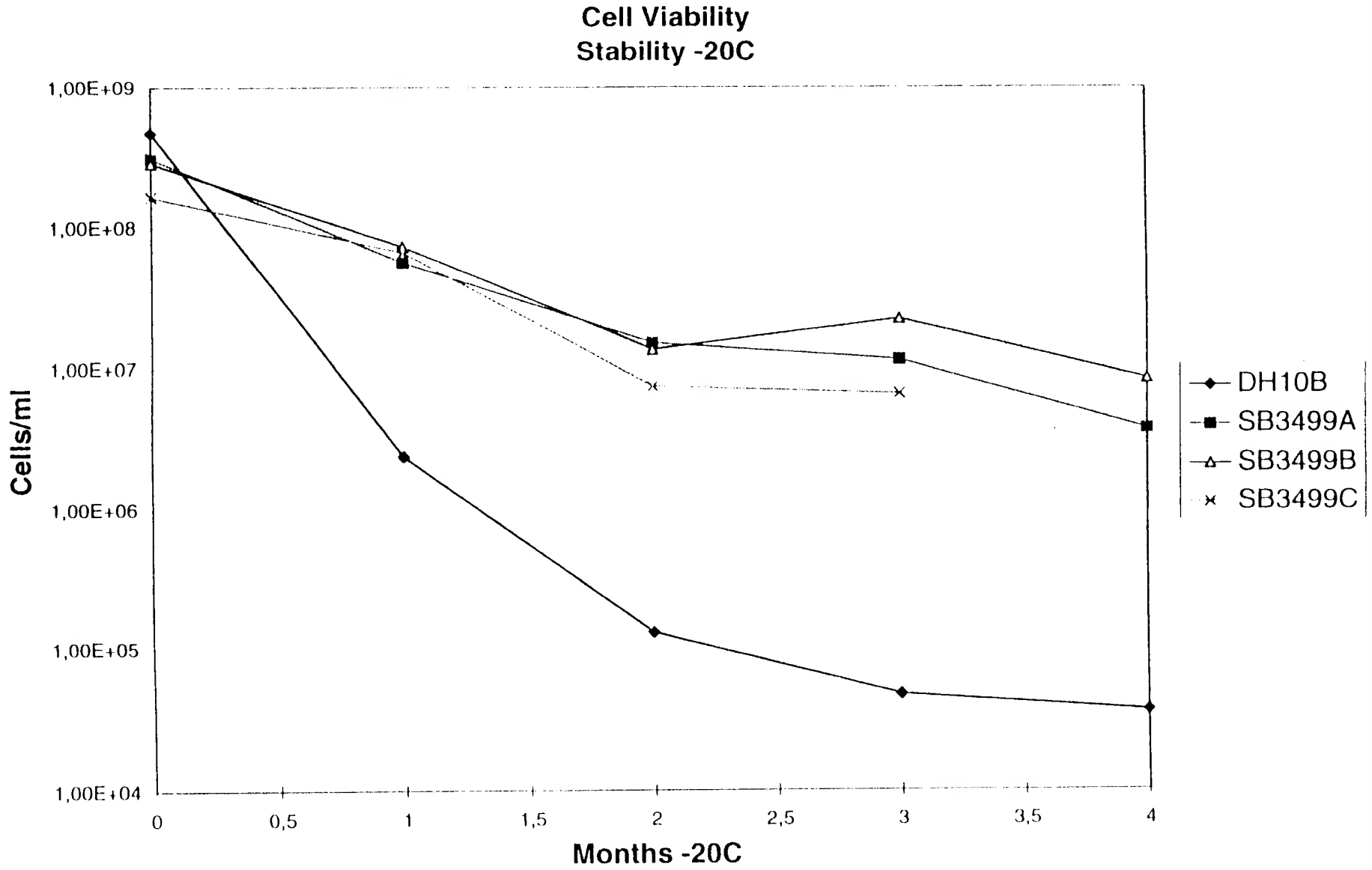

Cell Viability
Stability -20C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
Cells/ml
0
0,5
1
1,5
2
2,5
3
3,5
4
Months -20C
DH10B
SB3499A
SB3499B
SB3499C

Figure 1

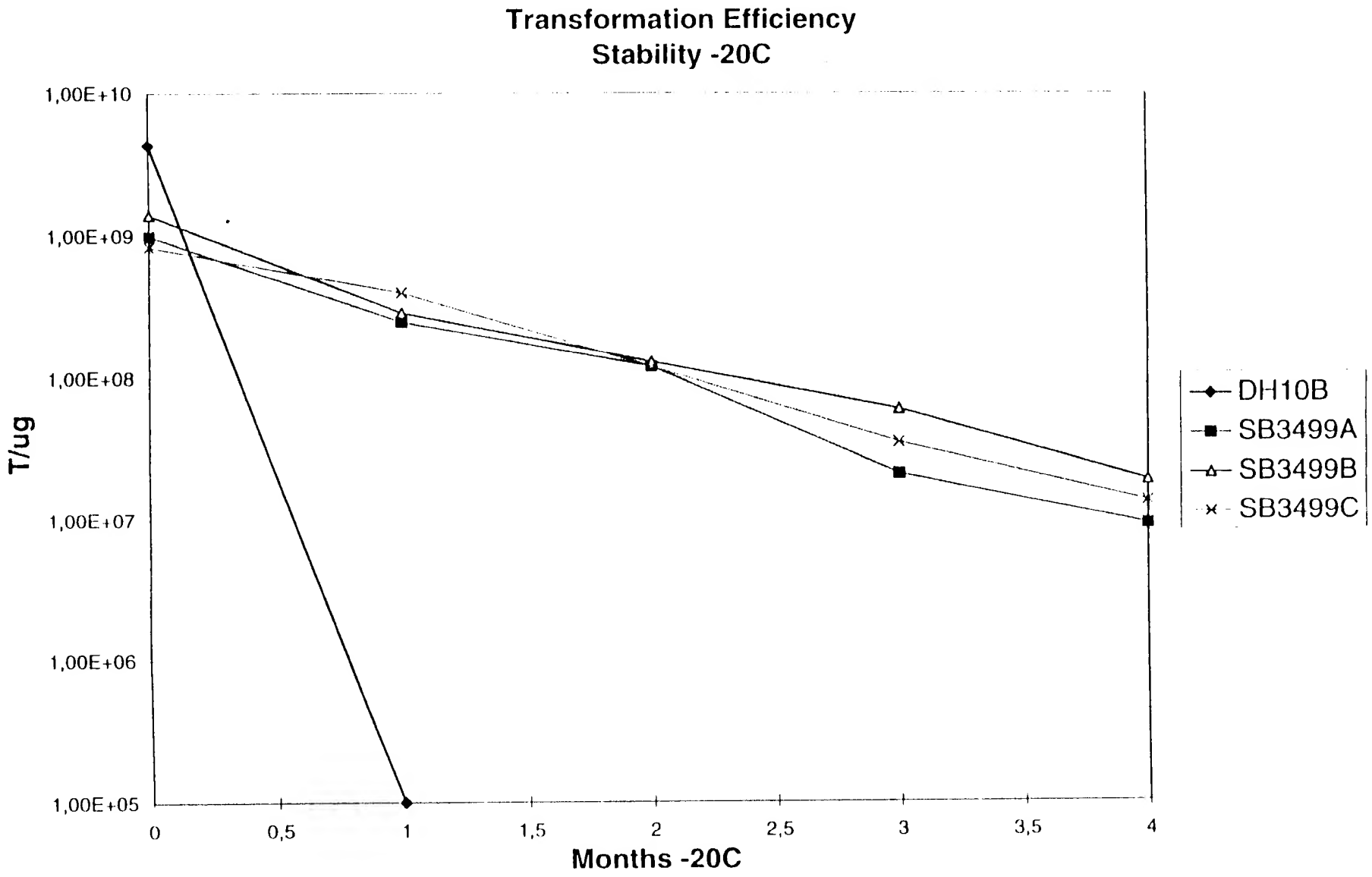

Transformation Efficiency
Stability -20C
1,00E+10
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
T/ug
0
0,5
1
1,5
2
2,5
3
3,5
4
Months -20C
DH10B
SB3499A
SB3499B
SB3499C

Figure 2

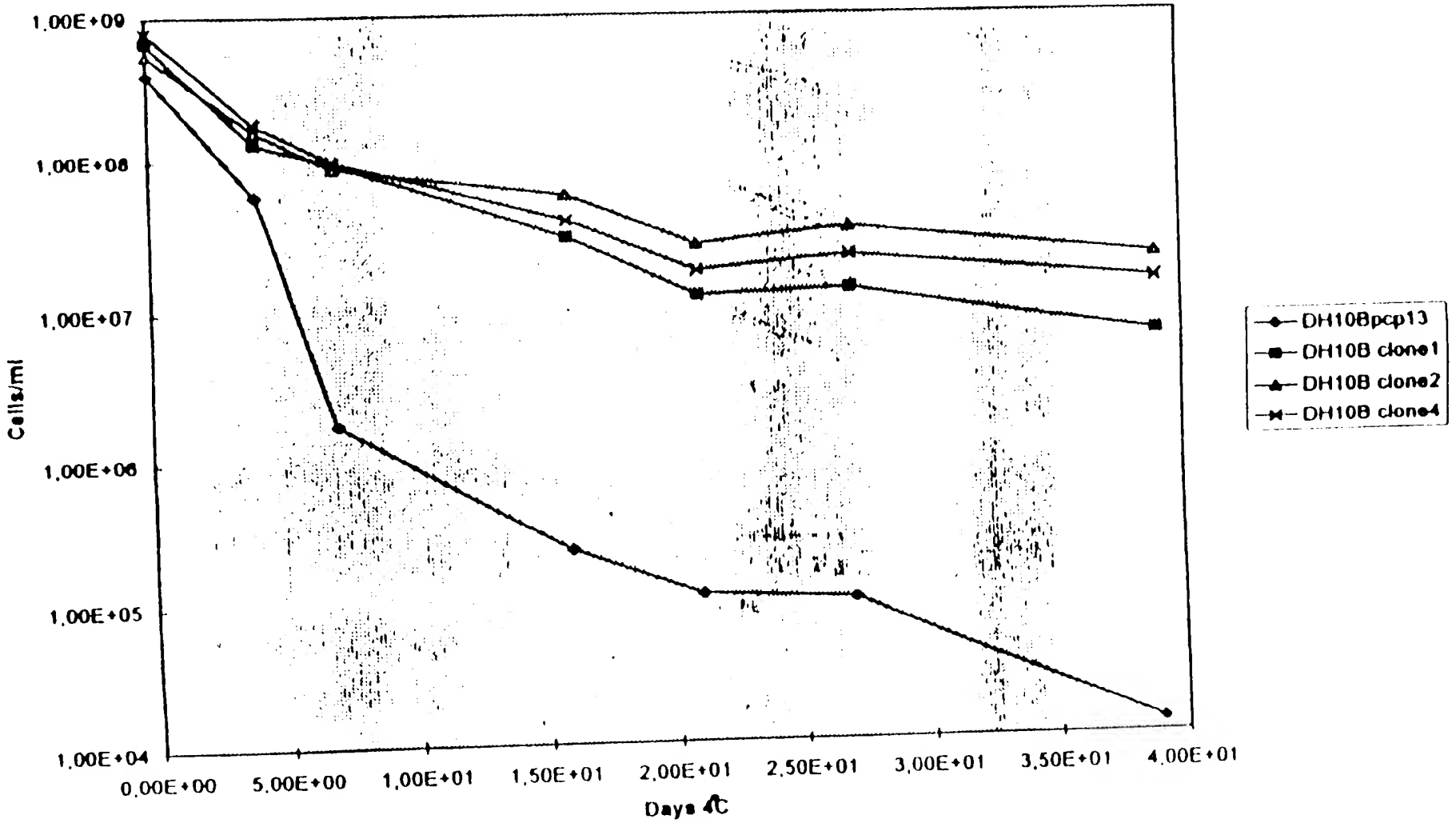

1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
Cells/ml
0.00E+00
5.00E+00
1.00E+01
1.50E+01
2.00E+01
2.50E+01
3.00E+01
3.50E+01
4.00E+01
Days 4C
DH10Bpcp13
DH10B clone1
DH10B clone2
DH10B clone4

FIGURE 3

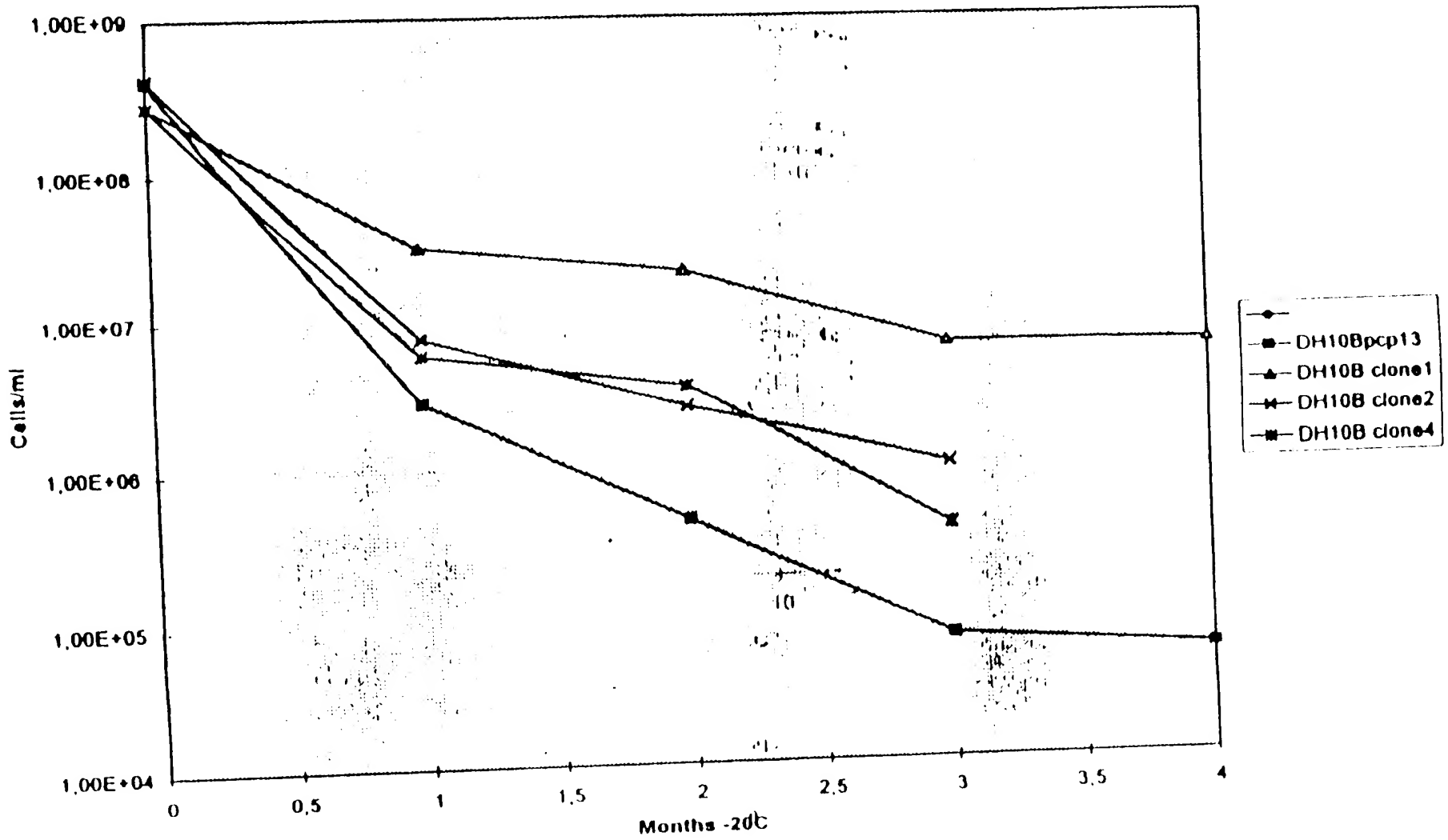

1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
Cells/ml
0
0,5
1
1,5
2
2,5
3
3,5
4
Months -20C
DH10Bpcp13
DH10B clone1
DH10B clone2
DH10B clone4

FIGURE 4 A

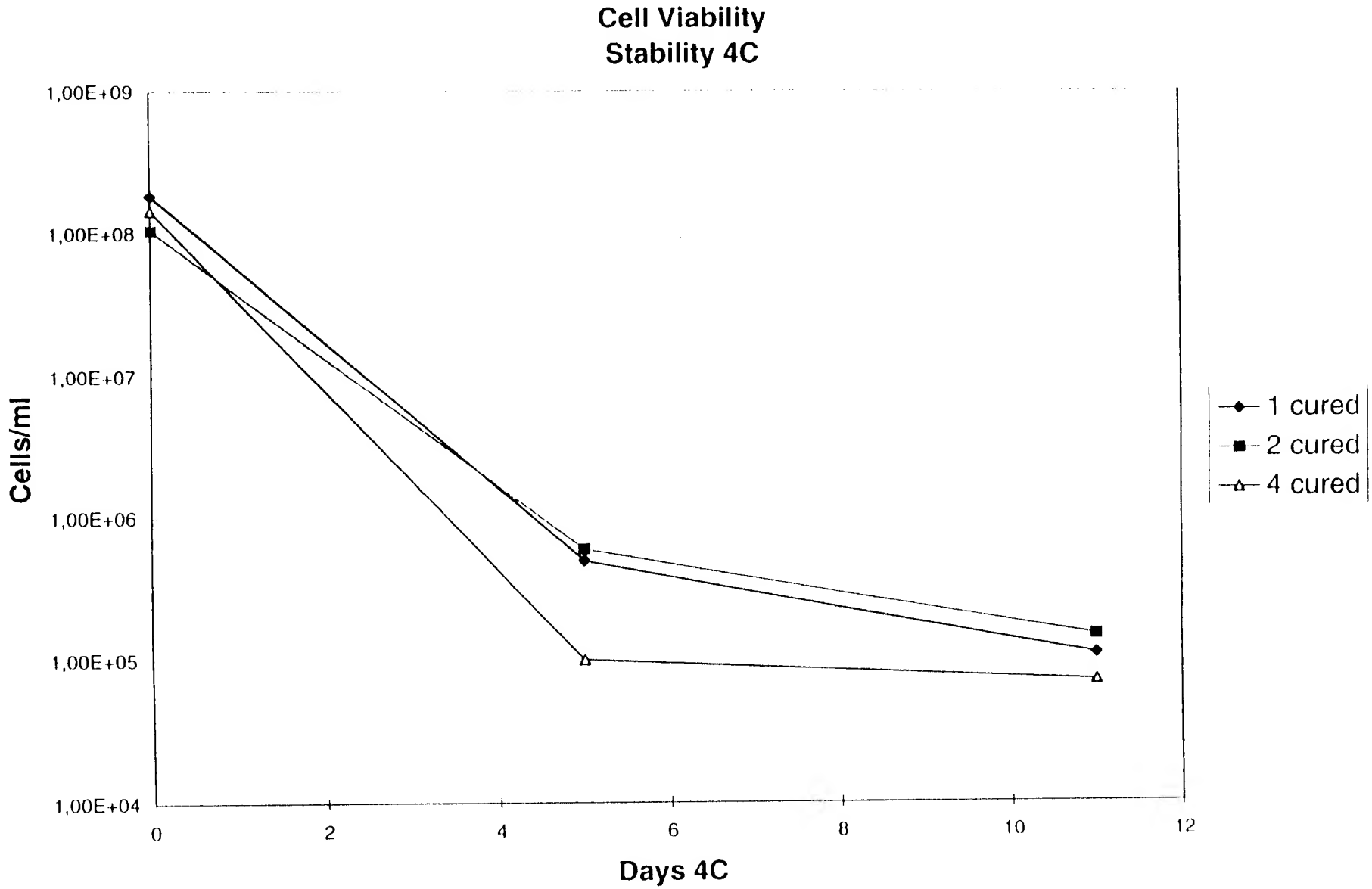

Cell Viability
Stability 4C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
Cells/ml
0
2
4
6
8
10
12
Days 4C
1 cured
2 cured
4 cured

 Figure 4B

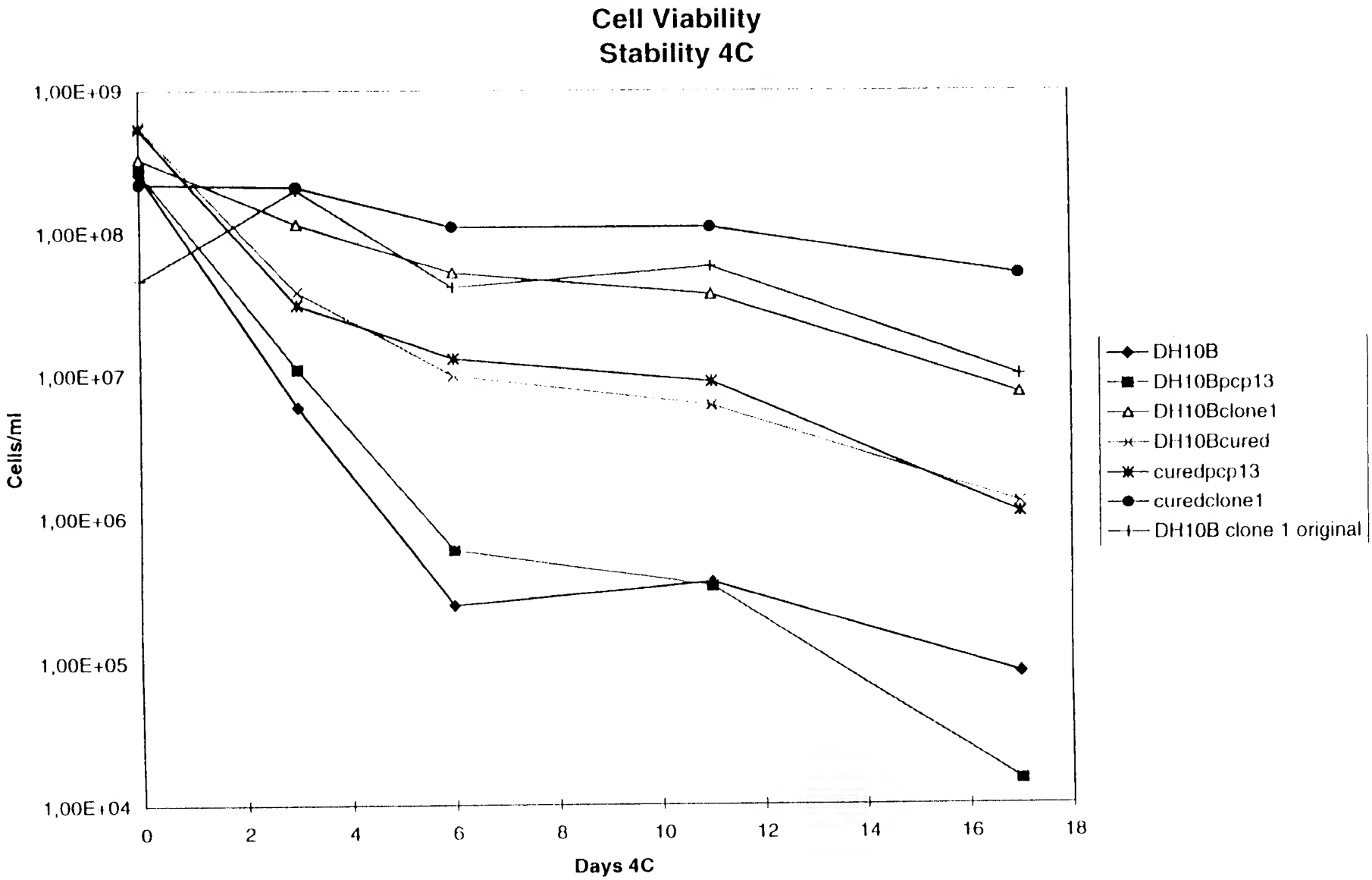

Cell Viability
Stability 4C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
Cells/ml
0
2
4
6
8
10
12
14
16
18
Days 4C
DH10B
DH10Bpcp13
DH10Bclone1
DH10Bcured
curedpcp13
curedclone1
DH10B clone 1 original

Figure 5

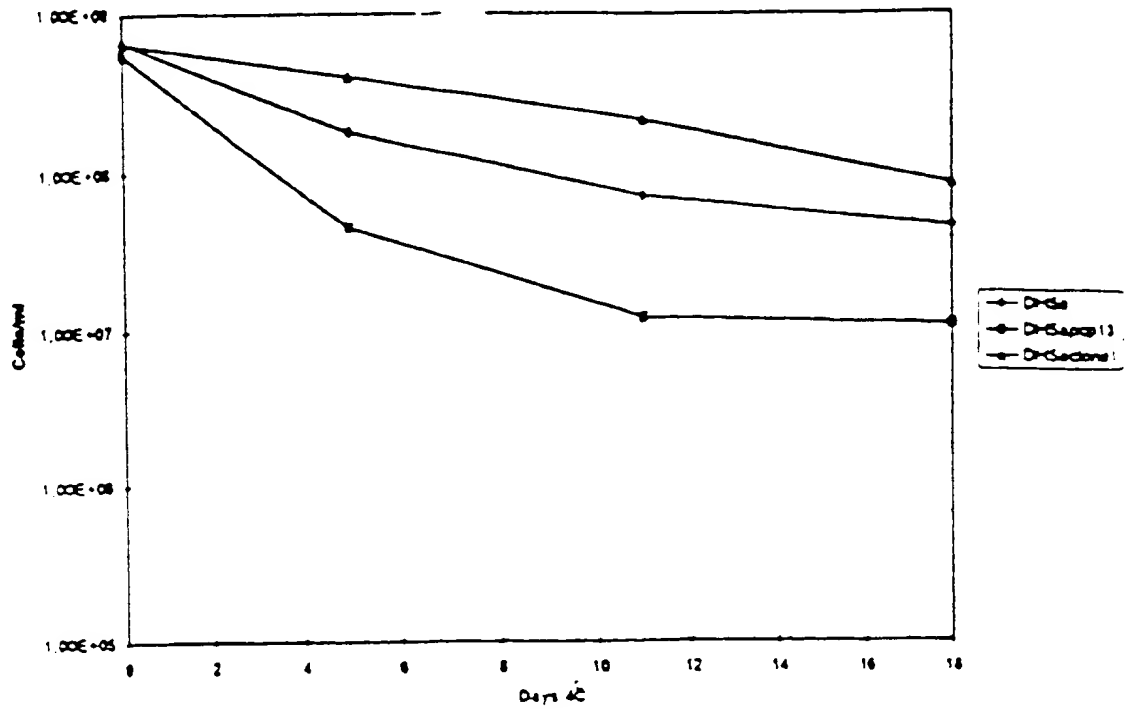


FIGURE 6A

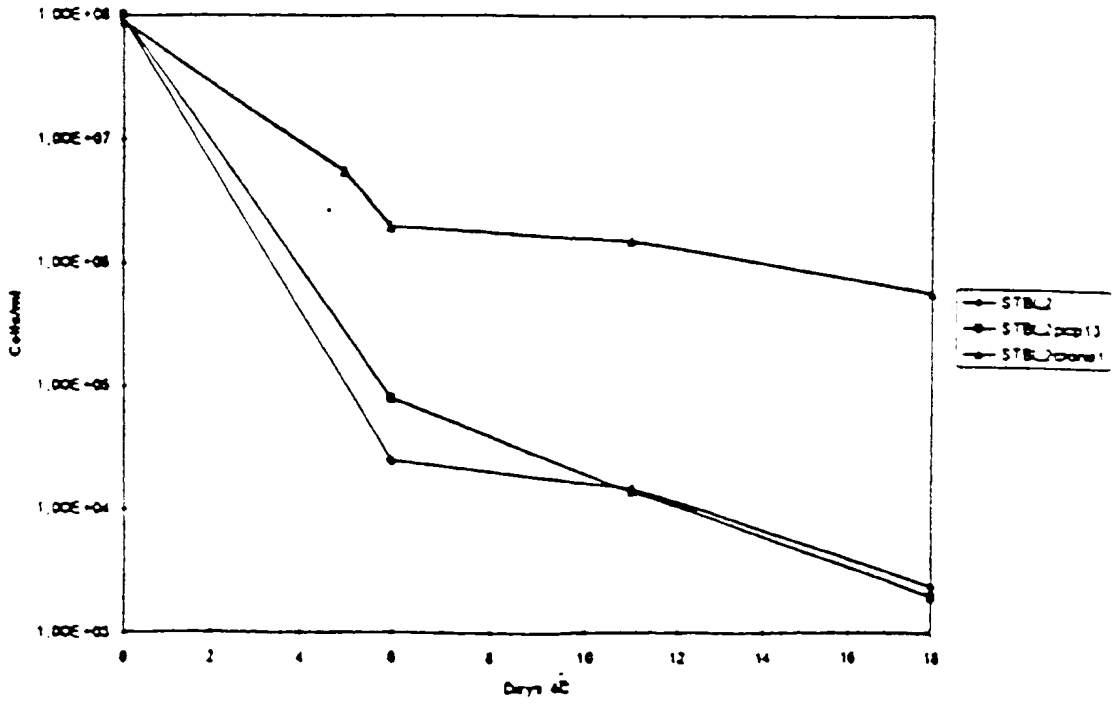


FIGURE 6B

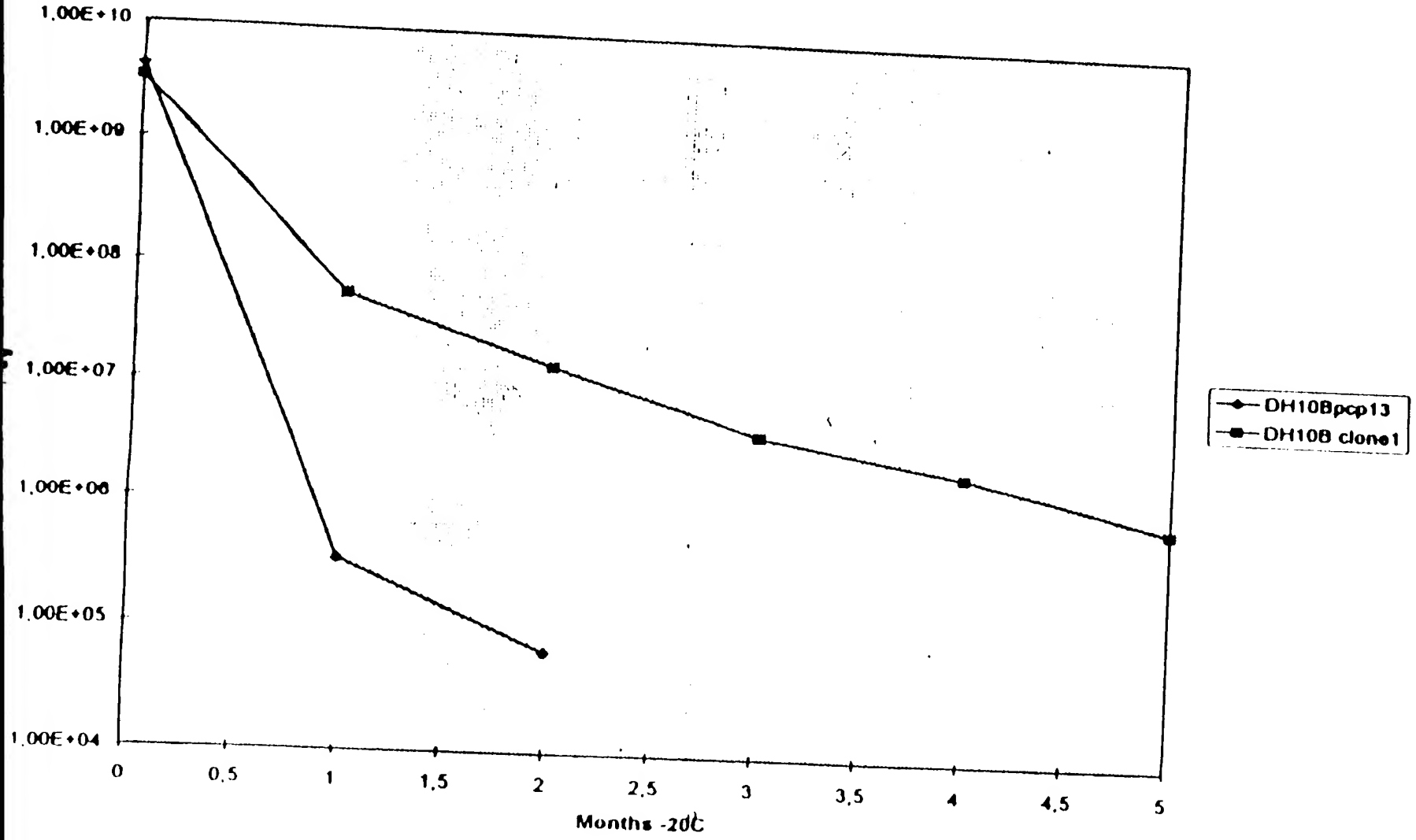

1.00E+10
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Months -20C
DH10Bpcp13
DH10B clone1

FIGURE 7

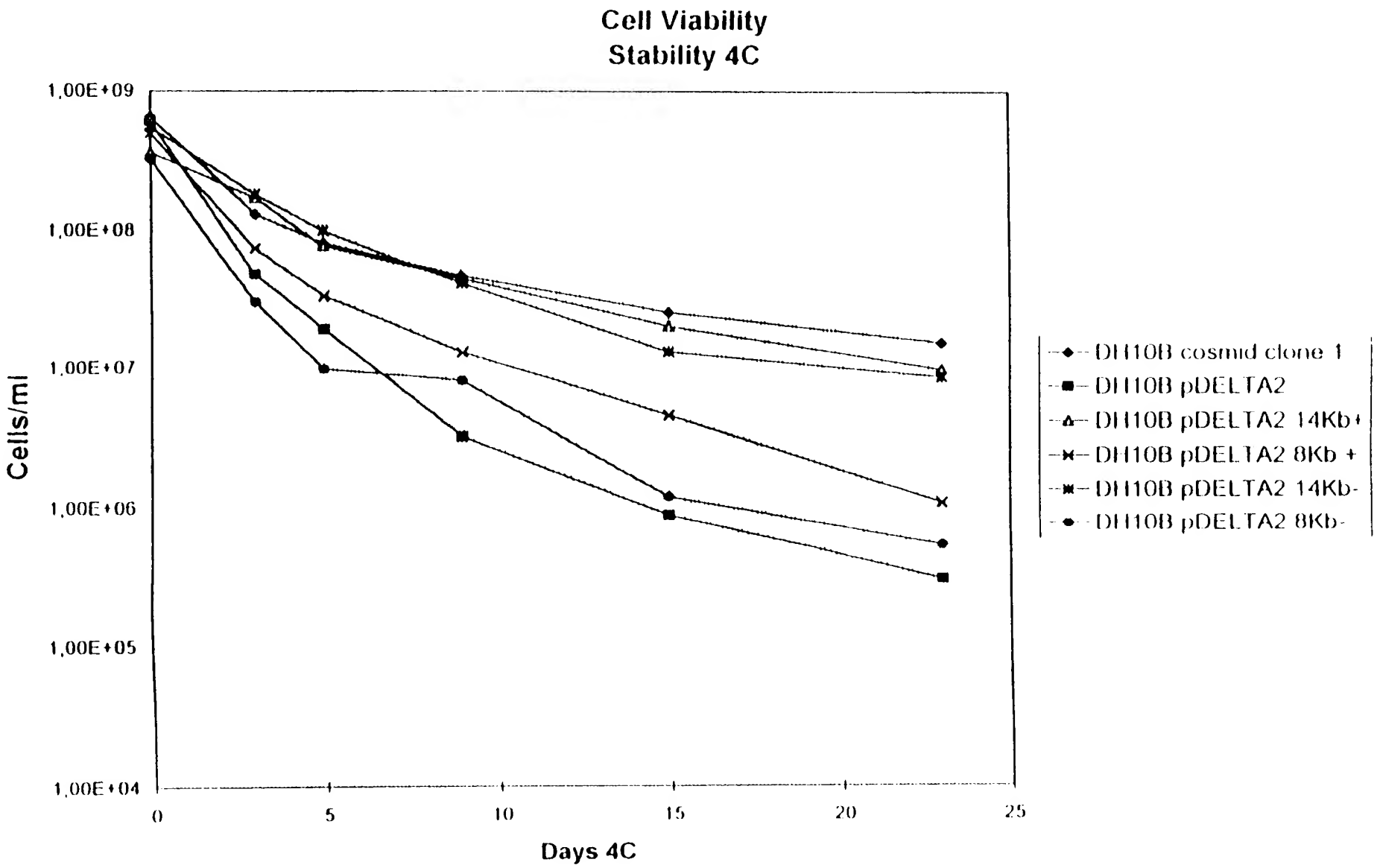

Cell Viability
Stability 4C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
Cells/ml
0
5
10
15
20
25
Days 4C
DH10B cosmid clone 1
DH10B pDELTA2
DH10B pDELTA2 14Kb+
DH10B pDELTA2 8Kb +
DH10B pDELTA2 14Kb-
DH10B pDELTA2 8Kb-

FIGURE 8

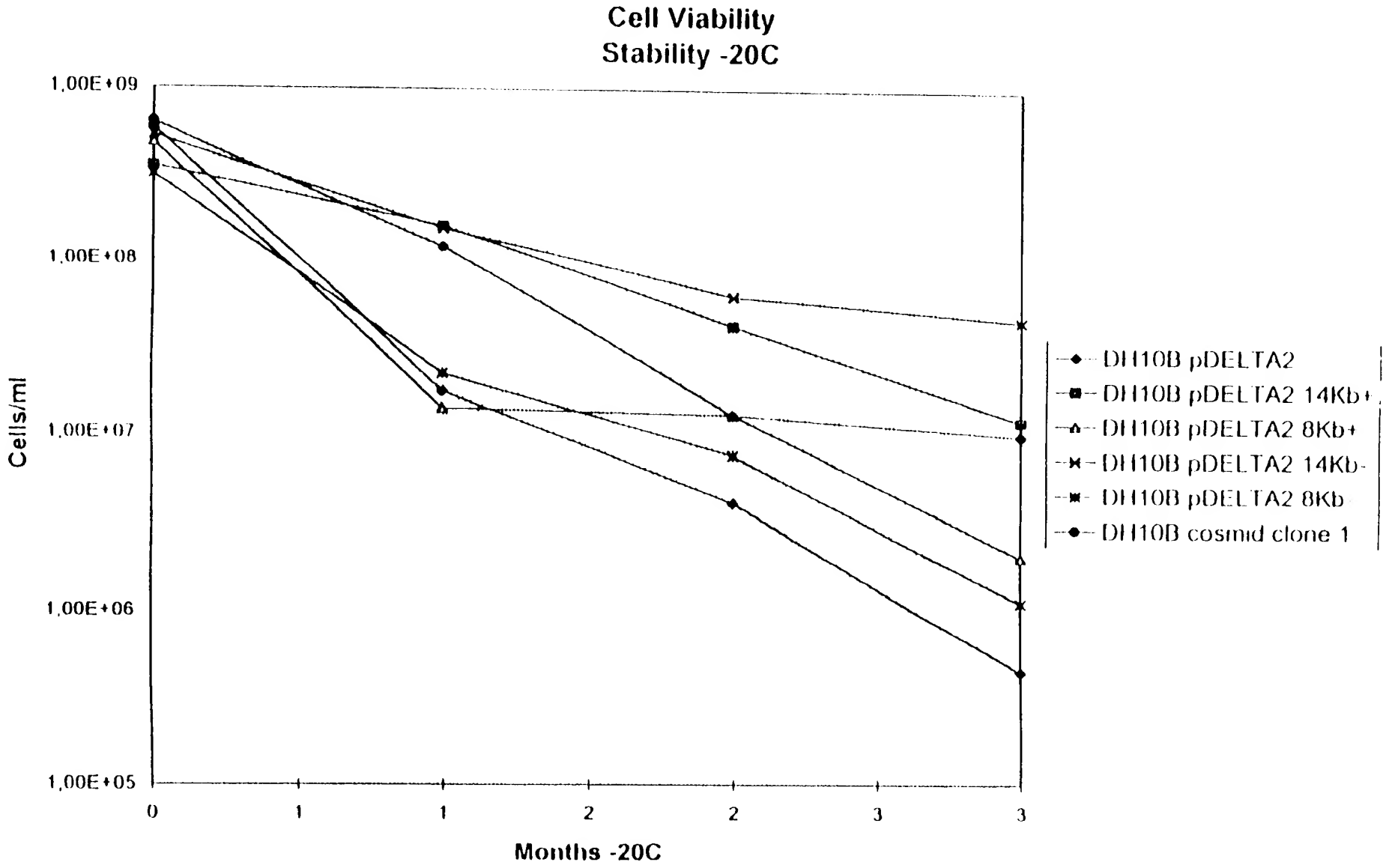

Cell Viability
Stability -20C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
Cells/ml
0
1
1
2
2
3
3
Months -20C
DH10B pDELTA2
DH10B pDELTA2 14Kb+
DH10B pDELTA2 8Kb+
DH10B pDELTA2 14Kb-
DH10B pDELTA2 8Kb-
DH10B cosmid clone 1

FIGURE 9

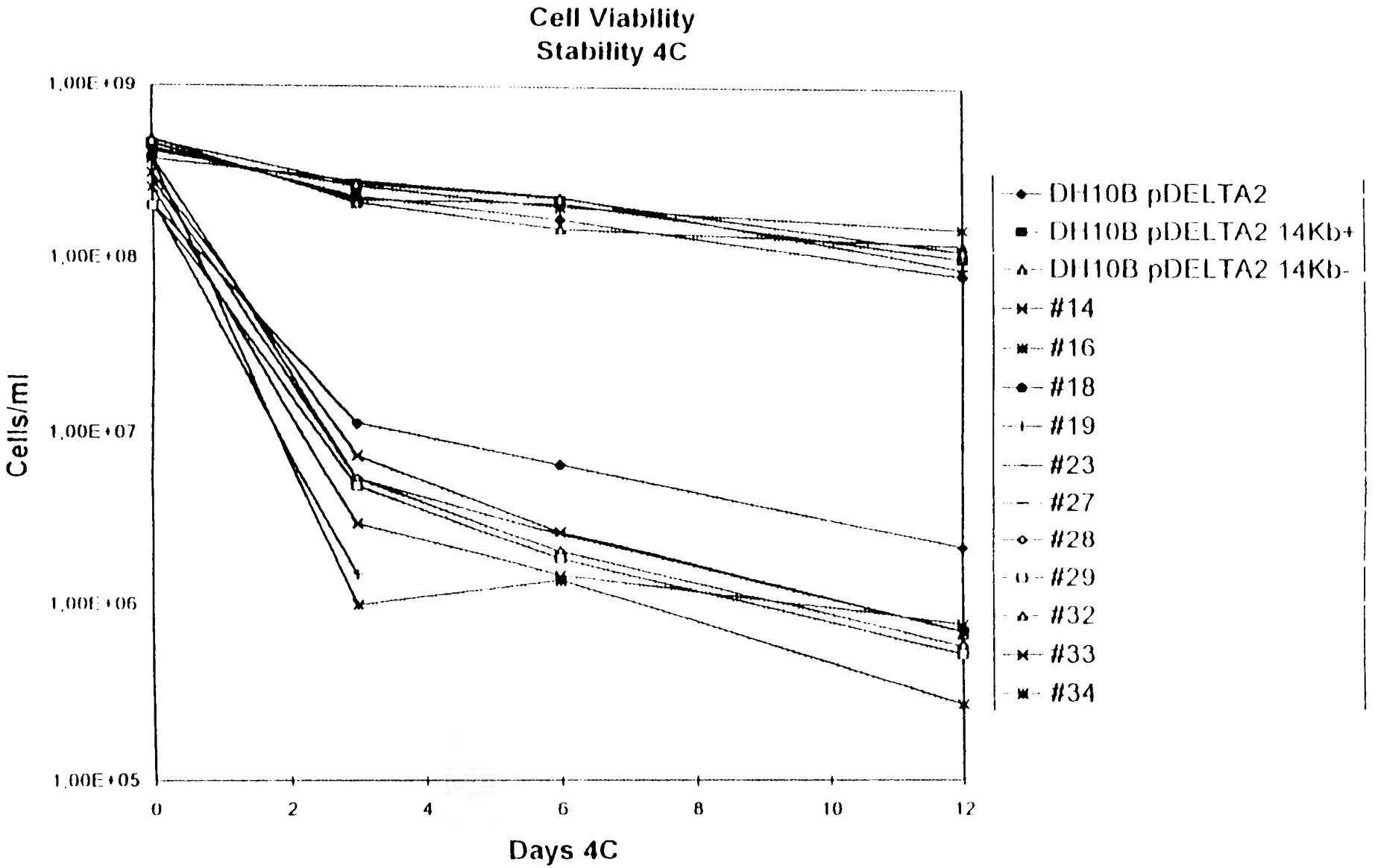

Cell Viability
Stability 4C
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
Cells/ml
0
2
4
6
8
10
12
Days 4C
DH10B pDELTA2
DH10B pDELTA2 14Kb+
DH10B pDELTA2 14Kb-
#14
#16
#18
#19
#23
#27
#28
#29
#32
#33
#34

FIGURE 10

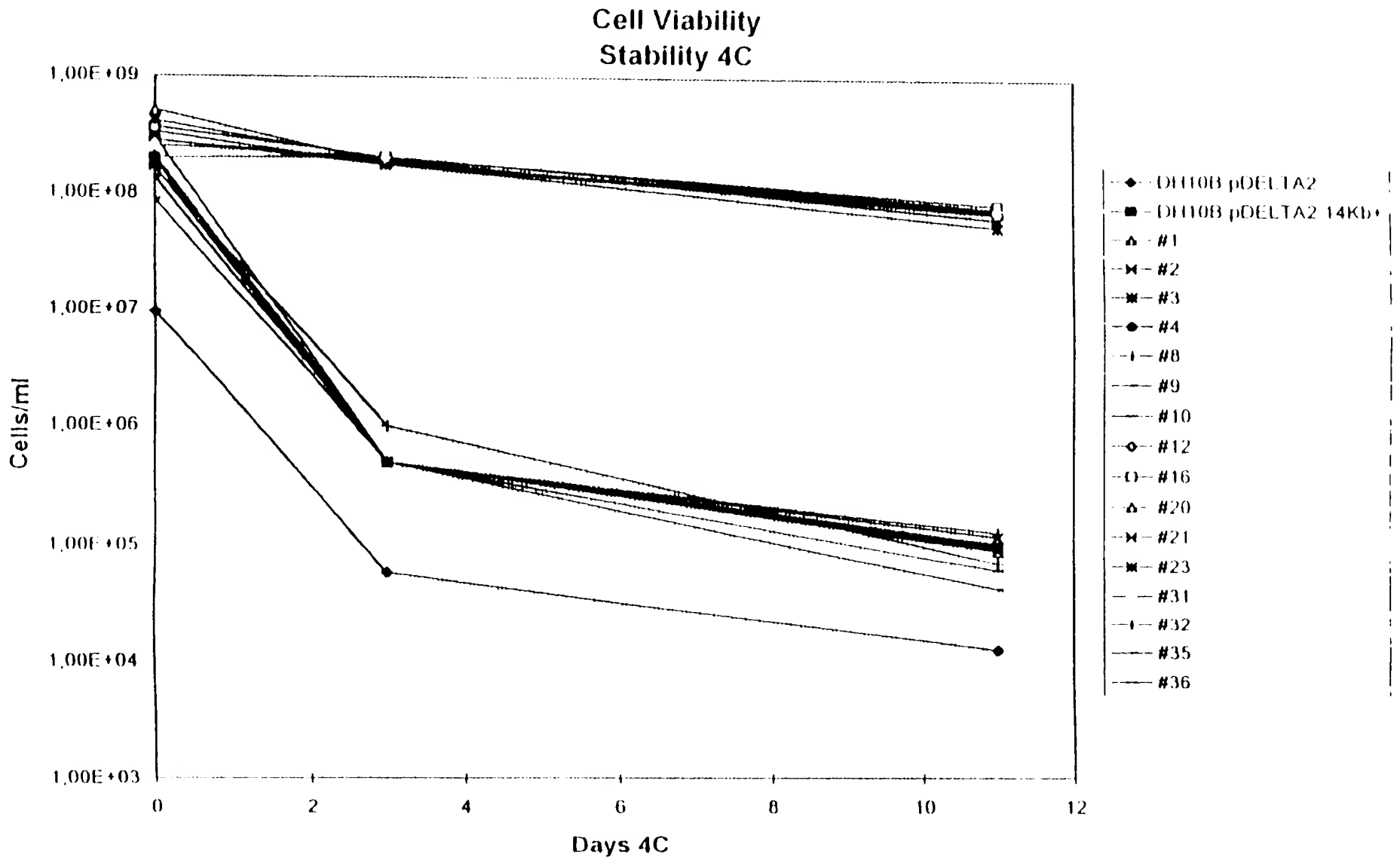

Cell Viability
Stability 4C
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
1.00E+03
Cells/ml
0
2
4
6
8
10
12
Days 4C
DH10B pDELTA2
DH10B pDELTA2 14KB+
#1
#2
#3
#4
#8
#9
#10
#12
#16
#20
#21
#23
#31
#32
#35
#36

FIGURE 11

Clone	DNA Size(kb)
Clone 1	22.0
19 -	5.8
34 -	6.2
29 -	7.0
14 -	8.2
33 -	8.3
28 -	8.4
32 +	10.4
27 +	10.5
18 +	14.0
16 +	15.0
3 +	16.0
10 +	15.5
32 -/16 +	14.0
4 -	12.0
1 -	11.2
9 -	10.8
35 -	10.7
2 -	10.0
36 -	9.3
21 -	8.0

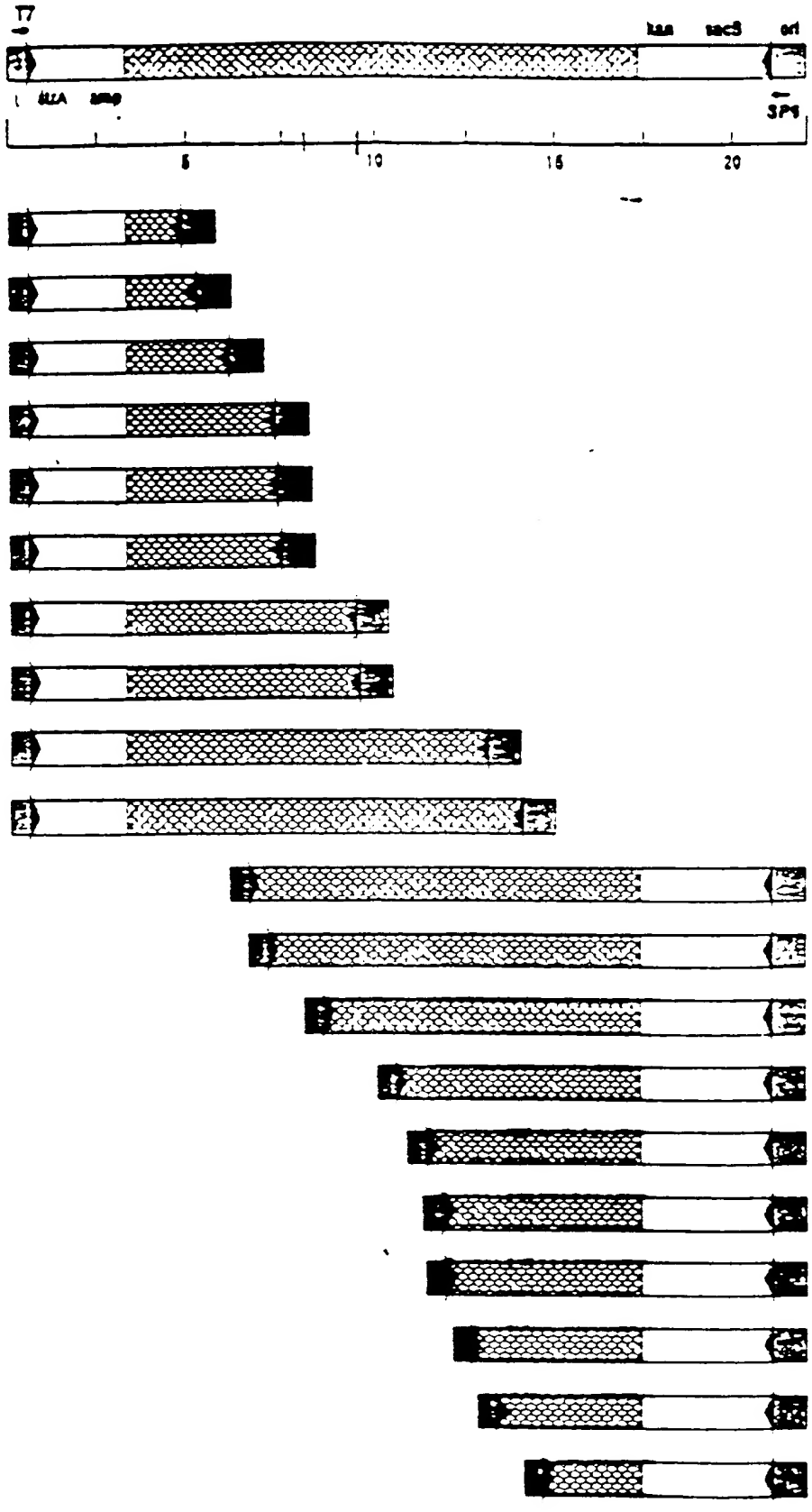


FIGURE 1

Fig. 13 Sequence of essential region of cosmid clone 1

CGTAGNTTTCGTTNCATTGGCCCTCAAACCCCTAATAGCGCCAGCGACAA 50

CAACGCGCTGGCAATACCACCGCCGATAATCGCCGCTTCCCGTTTGCTGC 100

TGCCCGTGCGGTTAAACCACGGCGCGGAGCAGGGGAGCGGTAATGTCTGT 150

TCCATCACCCCGCAAAGCATTTCCCGTTTGCGCCCAAAGCCCTTACGTTT 200

TTGCATCGTGAATCCGGCGTCCTGCAAACCGCGGCGGACAAAACCGGCAG 250

ACGTAAATGTCGCCAGCGTGCCGCCCGGACGCGCCAACCTTGCCATGGCG 300

TTAAACAGATTTTGCGTCCACATATCCGGGTTTTTCGCTGGCGCAAAGCC 350

GTCCAGAAACCAGGCATCTACTTTTTGATTTAGCGAATCGTCCAGTTGGC 400

TGGTCAGTTCGTTAATATCGCCAAACCATAAATCCAGCGTCACGCGGCCT 450

TCATCGAGCAATAAACGATGGCAACCGGGCAAGGGCATTGGCCACTGCGC 500

CTGAAGTTGTTCTGCCCACGGAGCCAGTTCCGGCCAGTGTTGATGCGCTA 550

AGGCTAAATCCGCACGGGTGAGGGGAAATTTCTCAAAACTAATGAAATGT 600

AAGCGTTGTAATTGCGCTTGCGGATGCGCTTCGCGAAACTGATCAAATGC 650

CTGCCATAGCGTCAGGAAGTTTAATCCGGTGCCGAAGCCGCTCTCTGCTA 700

CCACAAACAGAGGATGTGGATGCTCAGGAAAGCGTACCTCTAATTGGTTG 750

CCTCCCAGAAAAACATAACGCGTCTCTTCCAGCCCGTTATCGTTGGAAAA 800

ATAGACATCGTCAAAATCTCGGGAAACAGGTGTACCCTCAGCATTAAATT 850

CGAGGTTGGCAGGTTGTATGGAGTAGTGTTTCACGTAAGTTACTCGTCTT 900

ACAGGCGGTGGCTCGATCTTAGCGATGTGTGTAAGGCTGCGCAAATTTCT 950

CTATTAAATGGCTGATCGGACTTGTTCGGCGTACAAGTGTACGCTATTGT 1000

GCATTCGAAACTTACTCTATGTGCGACTTACAGAGGTATTGAATGAAACG 1050

TGCAGTGATTACTGGCCTGGGCATTGTTTCCACCATCGGTAATAACCAGC 1100

ACGAAGTCCTGGCATCTCTGCGTGAAGGACGTTCAGGGATCACTTTCTCT 1150

CAGGAGCTGAAGGATTCCGGCATGCGTAGCCACGTCTGGGGCAACGTAAA 1200

ACTGGATACCACTGGCCTCATTGACCGCAAAGTTGTGCGCTTTATGAGCG 1250

FIGURE 13

ACGCATCCATTTATGCATTCCTTTCTATGGAGCAGGCAATCGCTGATGCG[1300]

GGCCTCTCTCCGGAAGCTTACCAGAATAACCCGCGCGTTGGCCTGATTGC[1350]

AGGTTCCGGCGGCGGCTCCCCGCGTTTCCAGGTGTTCGGCGCTGACGCAA[1400]

TGCGCGGCCCGCGCGGCCTGAAAGCGGTTGGCCCGTATGTGGTCACCAAA[1450]

GCGATGGCATCCGGCGTTTCTGCCTGCCTCGCCACCCCGTTTAAAATTCA[1500]

TGGCGTTAACTACTCCATCAGCTCCGCGTGTCGACTTCCGCACACTGTA[1550]

TCGGTAACGCAGTAGAGCAGATCCAACTGGGCAAACAGGACATCGTGTTT[1600]

GCTGGCGGCGGCGAAGAGCTGTGCTGGGAAATGGCTTGCGAATTCGACGC[1650]

AATGGGTGCGCTGTCTACTAAATACAACGACACCCCGGAAAAAGCCTCCC[1700]

GTACTTACGACGCTCACCGTGACGGTTTCGTTATCGCTGGCGGCGGCGGT[1750]

ATGGTAGTGGTTGAAGAGCTGGAACACGCGCTGGCGCGTGGTGCTCACAT[1800]

CTATGCTGAAATCGTTGGCTACGGCGCAACCTCTGATGGTGCAGACATGG[1850]

TTGCTCCGTCTGGCGAAGGCGCAGTACGCTGCATGAAGATGGCGATGCAT[1900]

GGCGTTGATACCCCAATCGATTACCTGAACTCCCACGGTACTTCGACTCC[1950]

GGTTGGCGACGTGAAAGAGCTGGCAGCTATCCGTGAAGTGTTCGGCGATA[2000]

AGAGCCCGGCGATTTCTGCAACCAAAGCCATGACCGGTCACTCTCTGGGC[2050]

GCTGCTGGCGTACAGGAAGCTATCTACTCTCTGCTGATGCTGGAACACGG[2100]

CTTTATCGCCCCGAGCATCAACATTGAAGAGCTGGACGAGCAGGCTGCGG[2150]

GTCTGAACATCGTGACCGAAACGACCGATCGCGAACTGACCACCGTTATG[2200]

TCTAACAGCTTCGGCTTCGGCGGCACCAACGCCACGCTGGTAATGCGCAA[2250]

GCTGAAAGATTAATTCGCAGTAGGTCGGAGTAGACGCGCCAGCCTCGCAT[2300]

CCGACGTTACGCGCCAATGCGGCCTCCGGCACTAACGCAAAAGGGAACCT[2350]

GATGGTTCCCTTTTTCACATCATTGACAATCGCCGCCAGTTCCAGGCAAA[2400]

CTTCCCGCTTTGTCGATTTCCTTCTGAAAAGACGTACGCGTTAAATCCTG[2450]

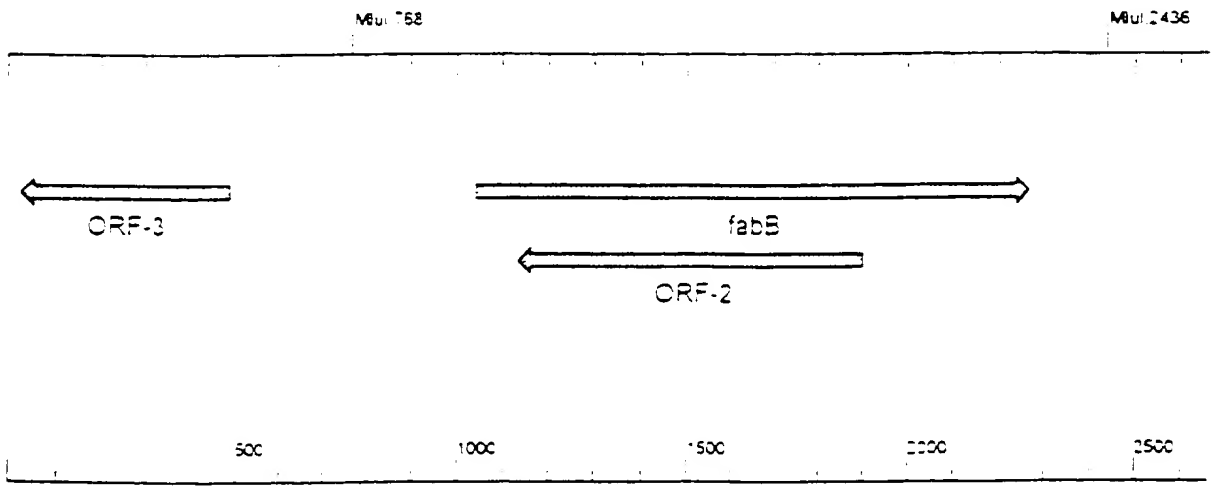
CCAACGCACCGTAACCCTGAAACCAGAGAGATGAGACGGGGATACTCCTC[2500]

GCCTTGCGCTGCATTCTGGAGTAATGCATGACTGCTGTAAGCCAAACCGA[2550]

AACACGATCTTTCTGCCAATTTTTTCGCTYTTTCCGCATCGCTTTTTTGCGG[2600]

TTTTTCTTCACCTACATGACCCGTAGGGTTGCCGTTGCCGGTTATCCCGC[3650]

TGTTTGTT[3658]



090396FA.SEQ (2658 bps)

FIGURE 14

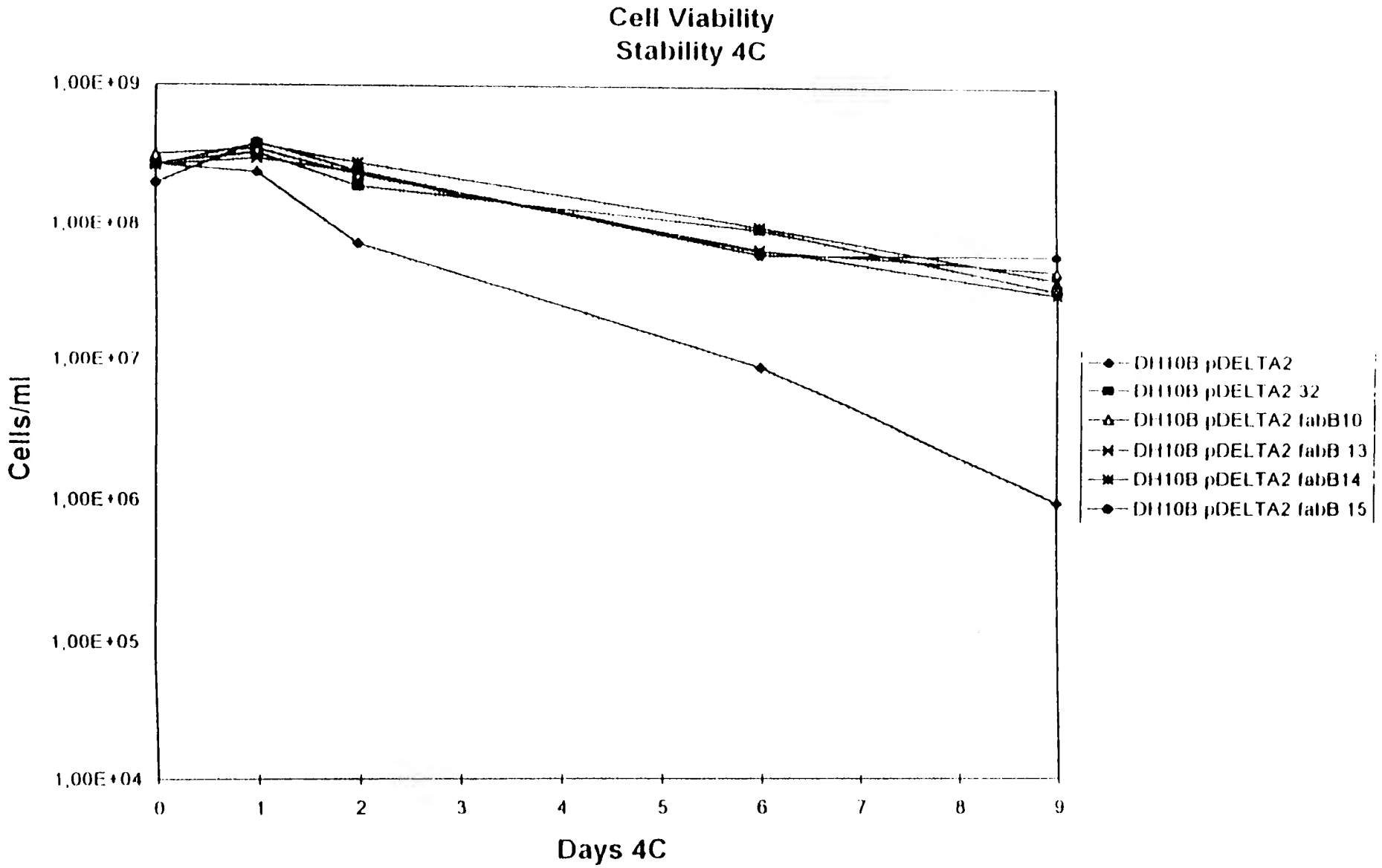

Cell Viability
Stability 4C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
Cells/ml
0
1
2
3
4
5
6
7
8
9
Days 4C
DH10B pDELTA2
DH10B pDELTA2 32
DH10B pDELTA2 fabB10
DH10B pDELTA2 fabB 13
DH10B pDELTA2 fabB14
DH10B pDELTA2 fabB 15

FIGURE 15

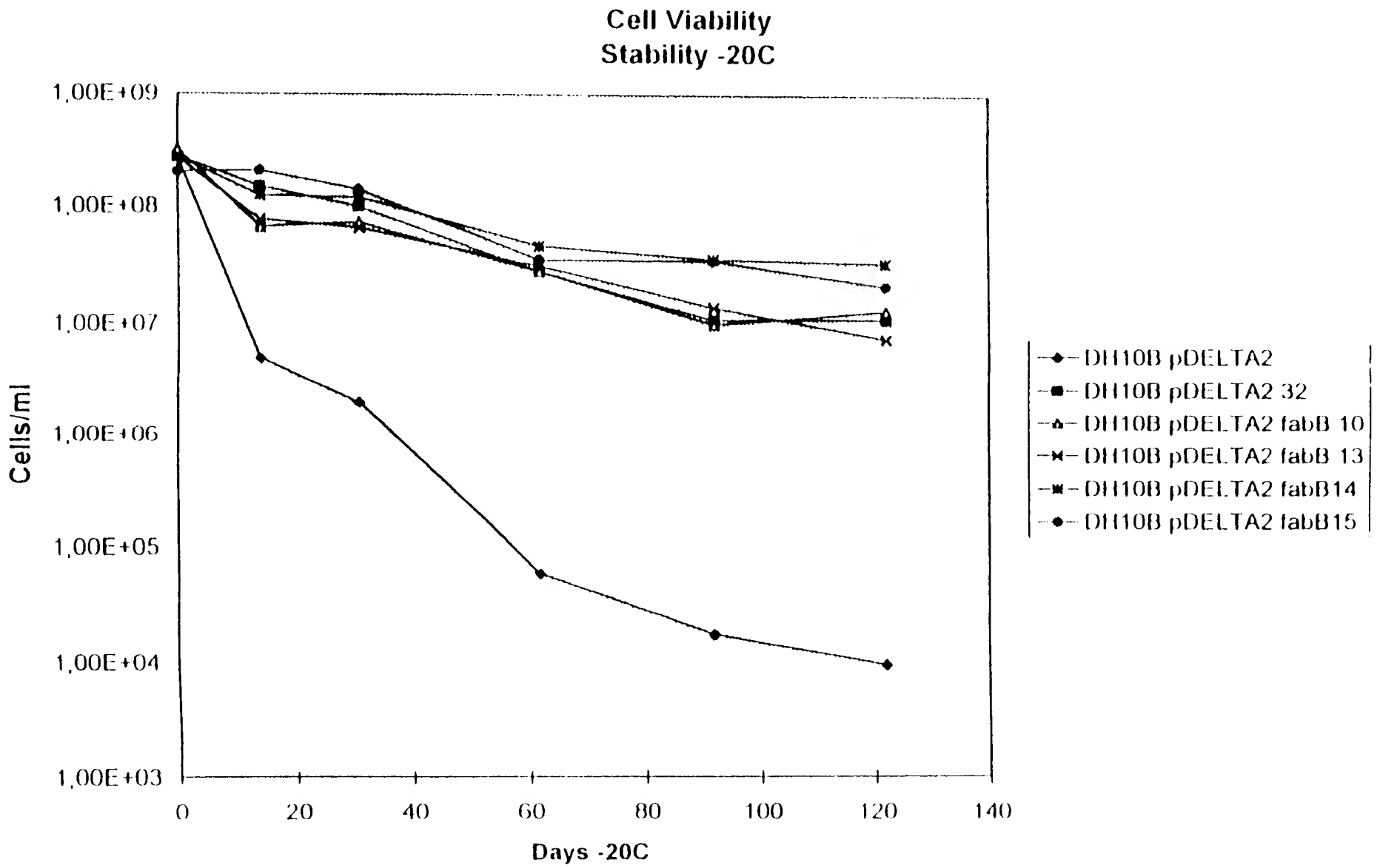

Cell Viability
Stability -20C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
1,00E+03
Cells/ml
0
20
40
60
80
100
120
140
Days -20C
DH10B pDELTA2
DH10B pDELTA2 32
DH10B pDELTA2 fabB 10
DH10B pDELTA2 fabB 13
DH10B pDELTA2 fabB14
DH10B pDELTA2 fabB15

FIGURE 16

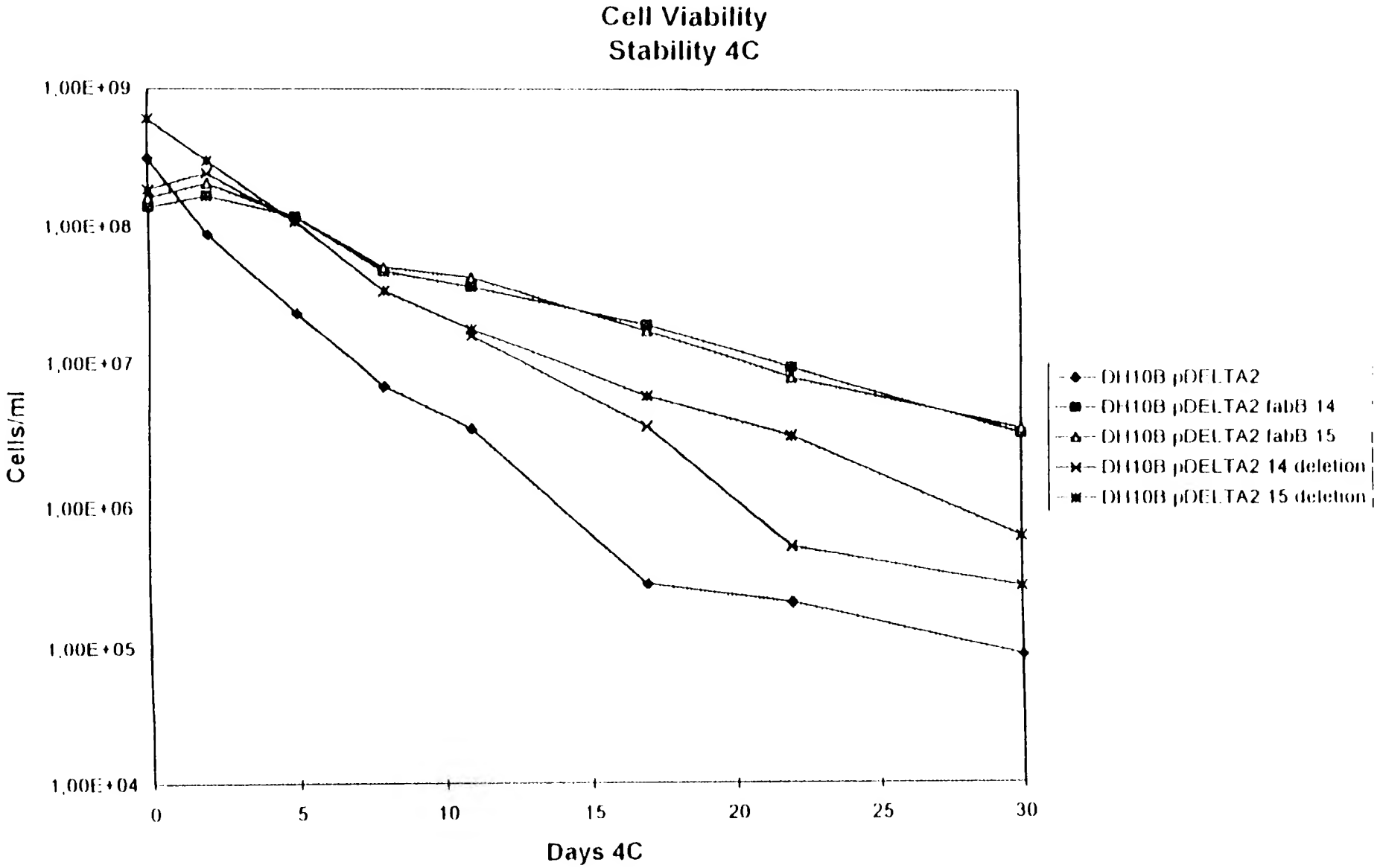

Cell Viability
Stability 4C
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
Cells/ml
0
5
10
15
20
25
30
Days 4C
DH10B pDELTA2
DH10B pDELTA2 fabB 14
DH10B pDELTA2 fabB 15
DH10B pDELTA2 14 deletion
DH10B pDELTA2 15 deletion

FIGURE 17

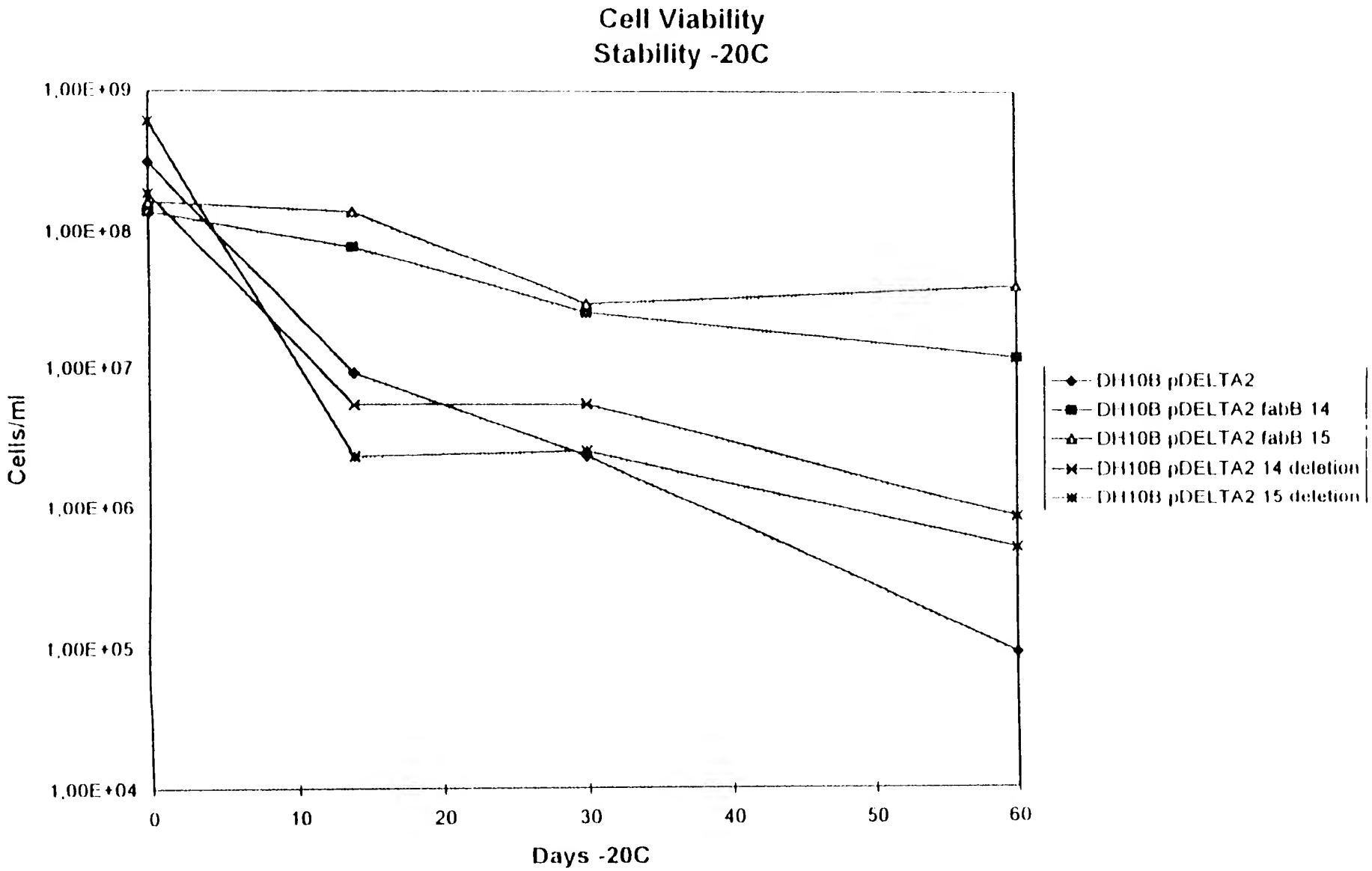

Cell Viability
Stability -20C
1.00E+09
1.00E+08
1.00E+07
1.00E+06
1.00E+05
1.00E+04
Cells/ml
0
10
20
30
40
50
60
Days -20C
DH10B pDELTA2
DH10B pDELTA2 fabB 14
DH10B pDELTA2 fabB 15
DH10B pDELTA2 14 deletion
DH10B pDELTA2 15 deletion

FIGURE 18

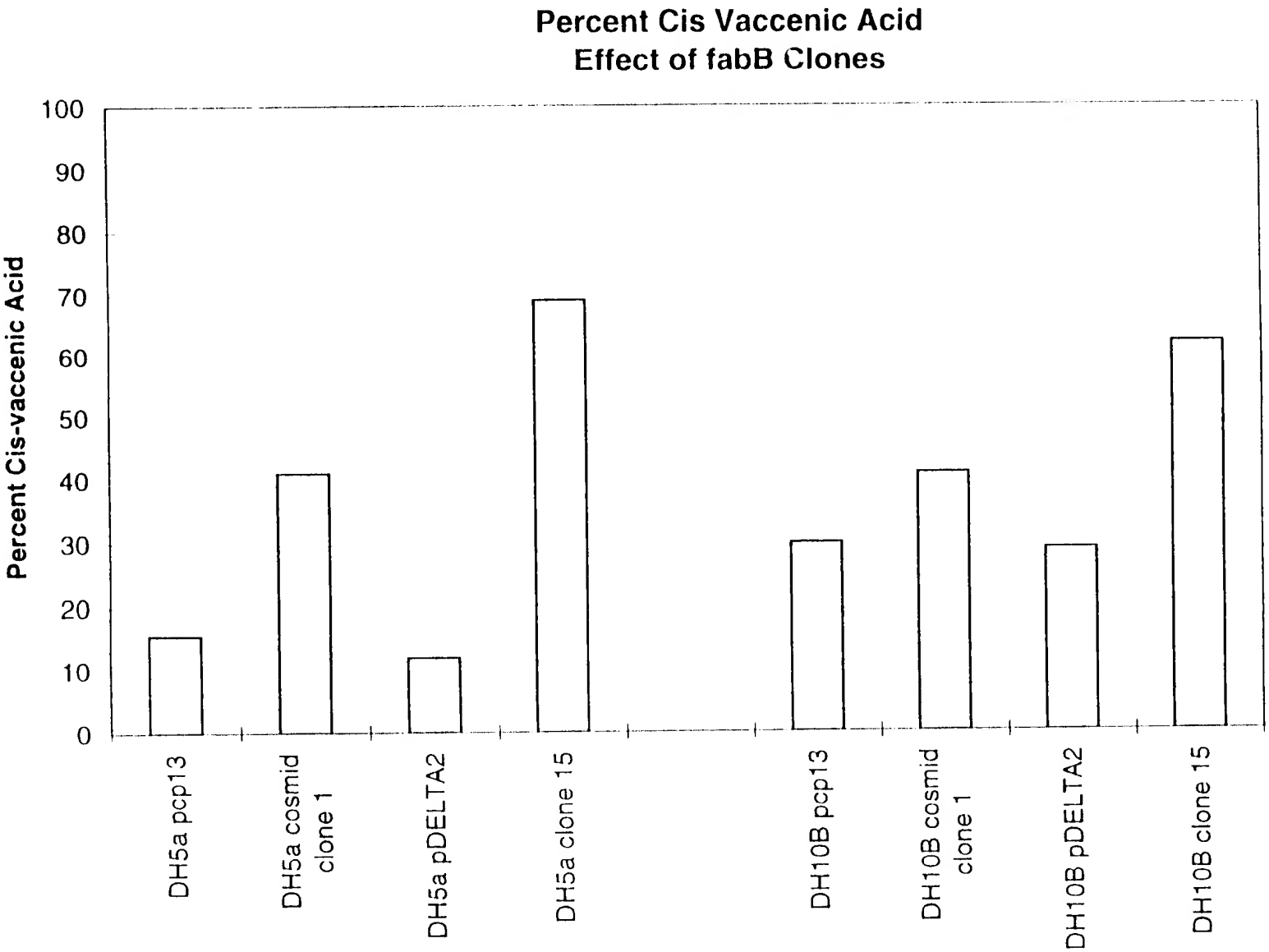

Percent Cis Vaccenic Acid
Effect of fabB Clones
Percent Cis-vaccenic Acid
100
90
80
70
60
50
40
30
20
10
0
DH5a pcp13
DH5a cosmid clone 1
DH5a pDELTA2
DH5a clone 15
DH10B pcp13
DH10B cosmid clone 1
DH10B pDELTA2
DH10B clone 15

Figure 19

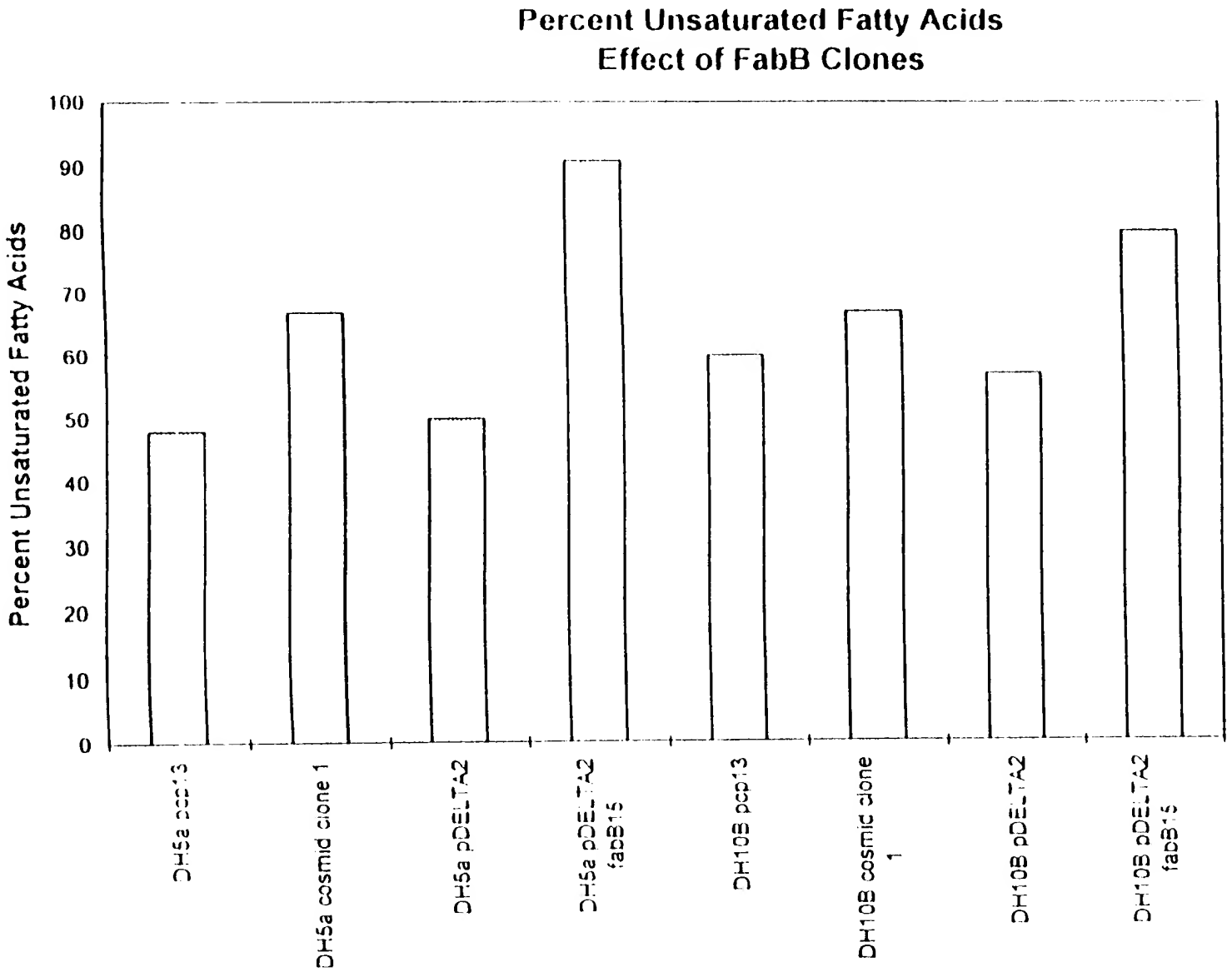

Percent Unsaturated Fatty Acids
Effect of FabB Clones
Percent Unsaturated Fatty Acids
100
90
80
70
60
50
40
30
20
10
0
DH5a pcp13
DH5a cosmid clone 1
DH5a pDELTA2
DH5a pDELTA2 fabB15
DH10B pcp13
DH10B cosmid clone 1
DH10B pDELTA2
DH10B pDELTA2 fabB15

FIGURE 20

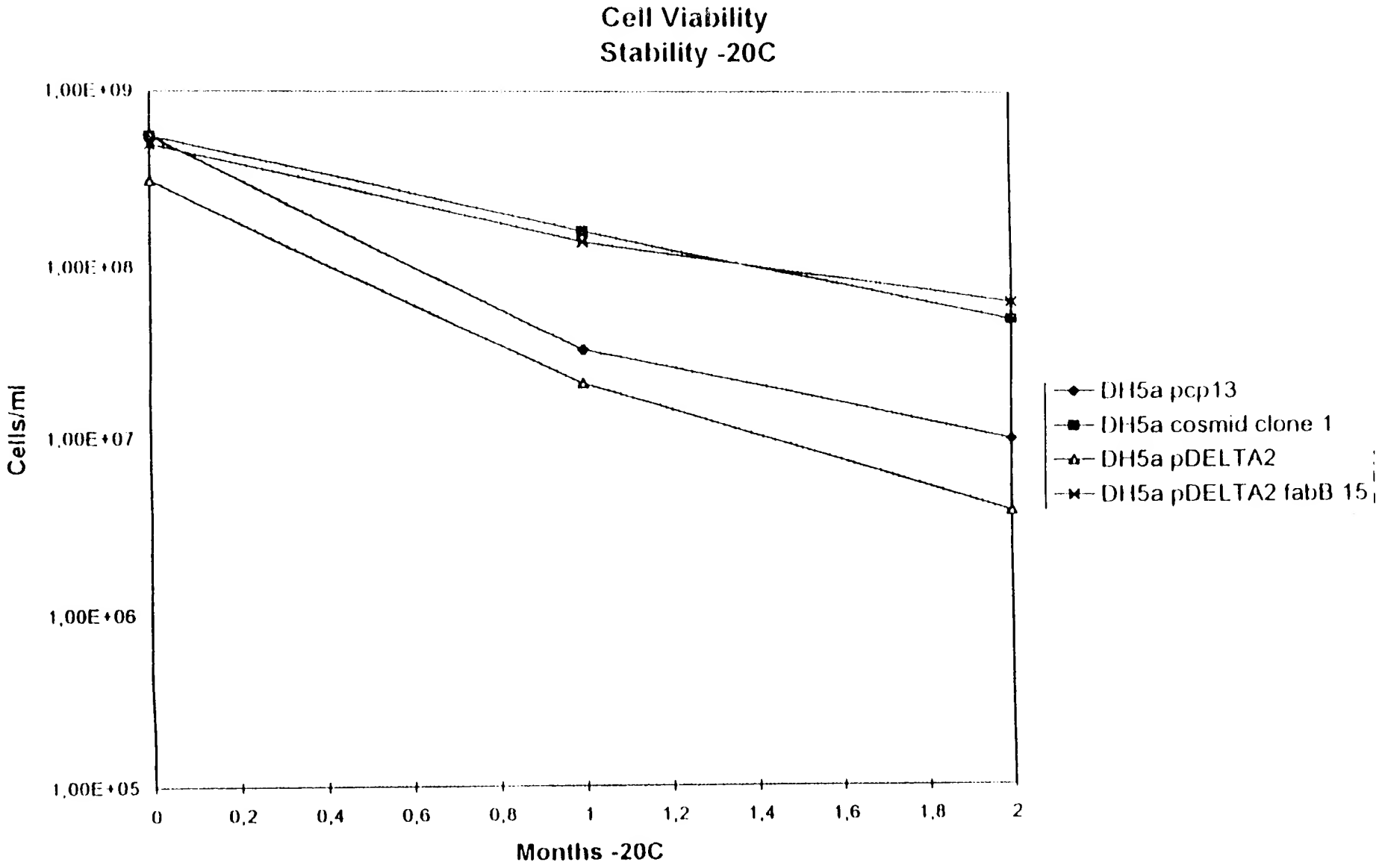

Cell Viability
Stability -20C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
Cells/ml
0
0,2
0,4
0,6
0,8
1
1,2
1,4
1,6
1,8
2
Months -20C
DH5a pcp13
DH5a cosmid clone 1
DH5a pDELTA2
DH5a pDELTA2 fabB 15

FIGURE 21

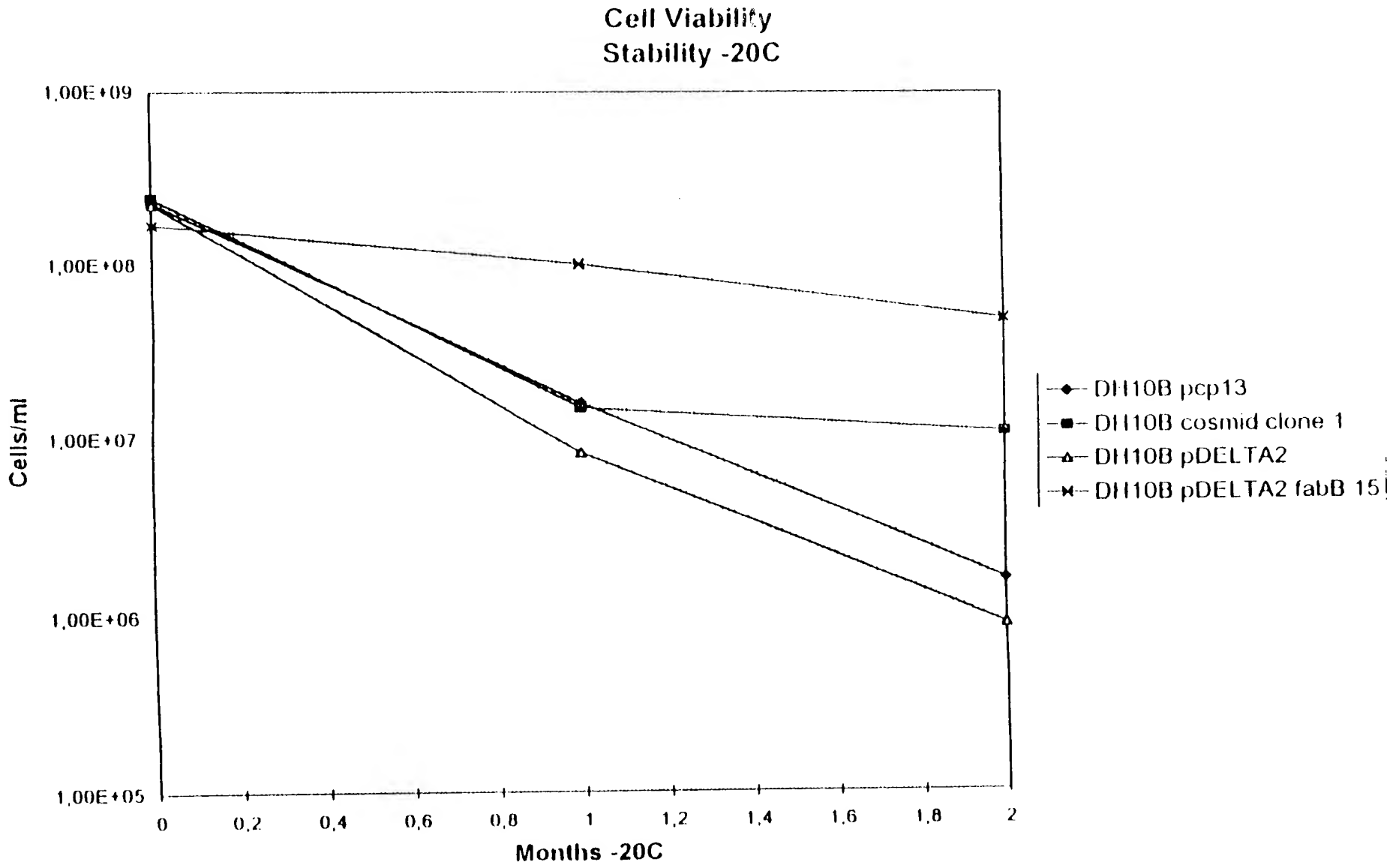

Cell Viability
Stability -20C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
Cells/ml
0
0,2
0,4
0,6
0,8
1
1,2
1,4
1,6
1,8
2
Months -20C
DH10B pcp13
DH10B cosmid clone 1
DH10B pDELTA2
DH10B pDELTA2 fabB 15

FIGURE 22

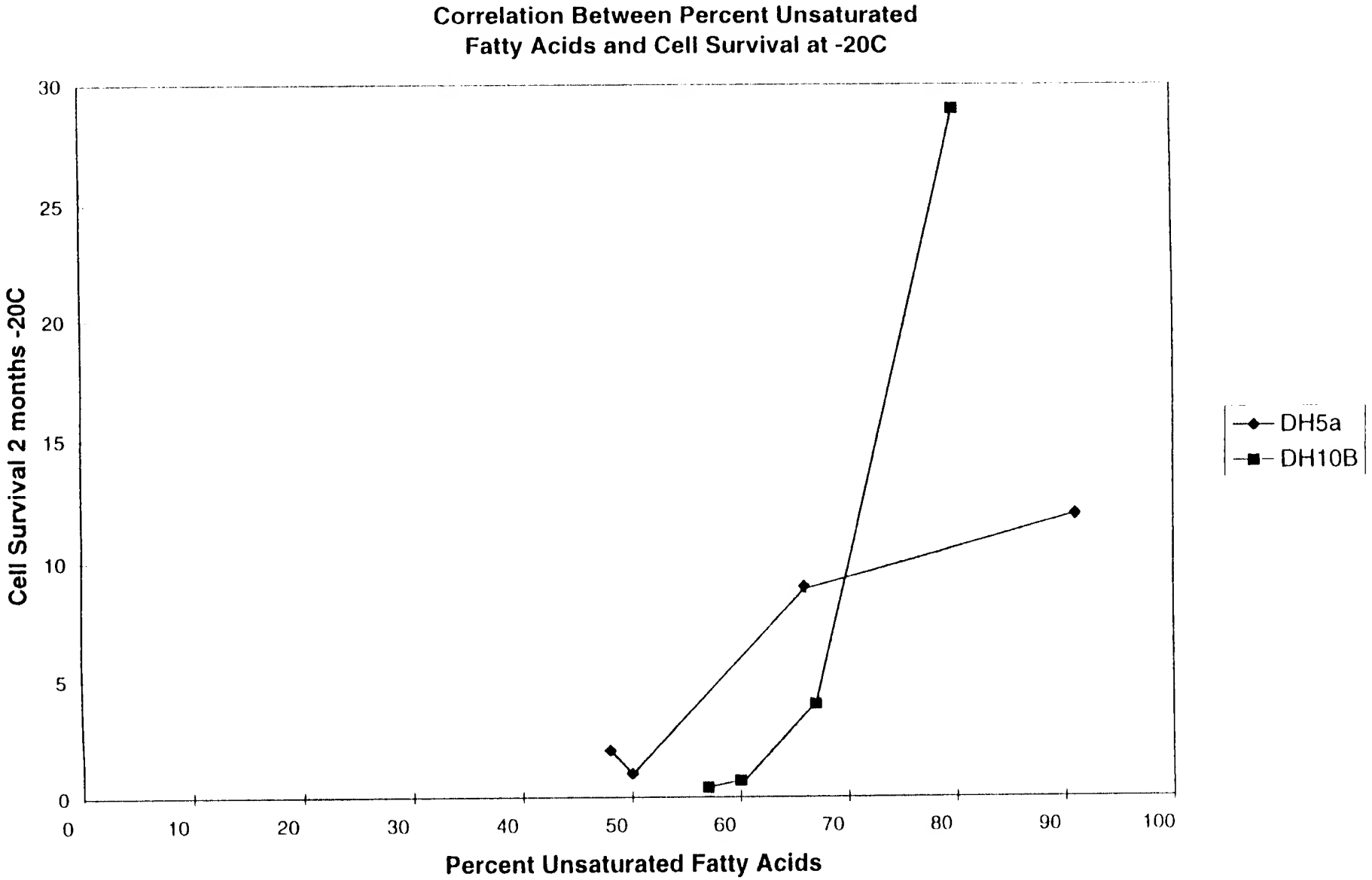

Correlation Between Percent Unsaturated Fatty Acids and Cell Survival at -20C
Cell Survival 2 months -20C
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Unsaturated Fatty Acids
DH5a
DH10B

Figure 23

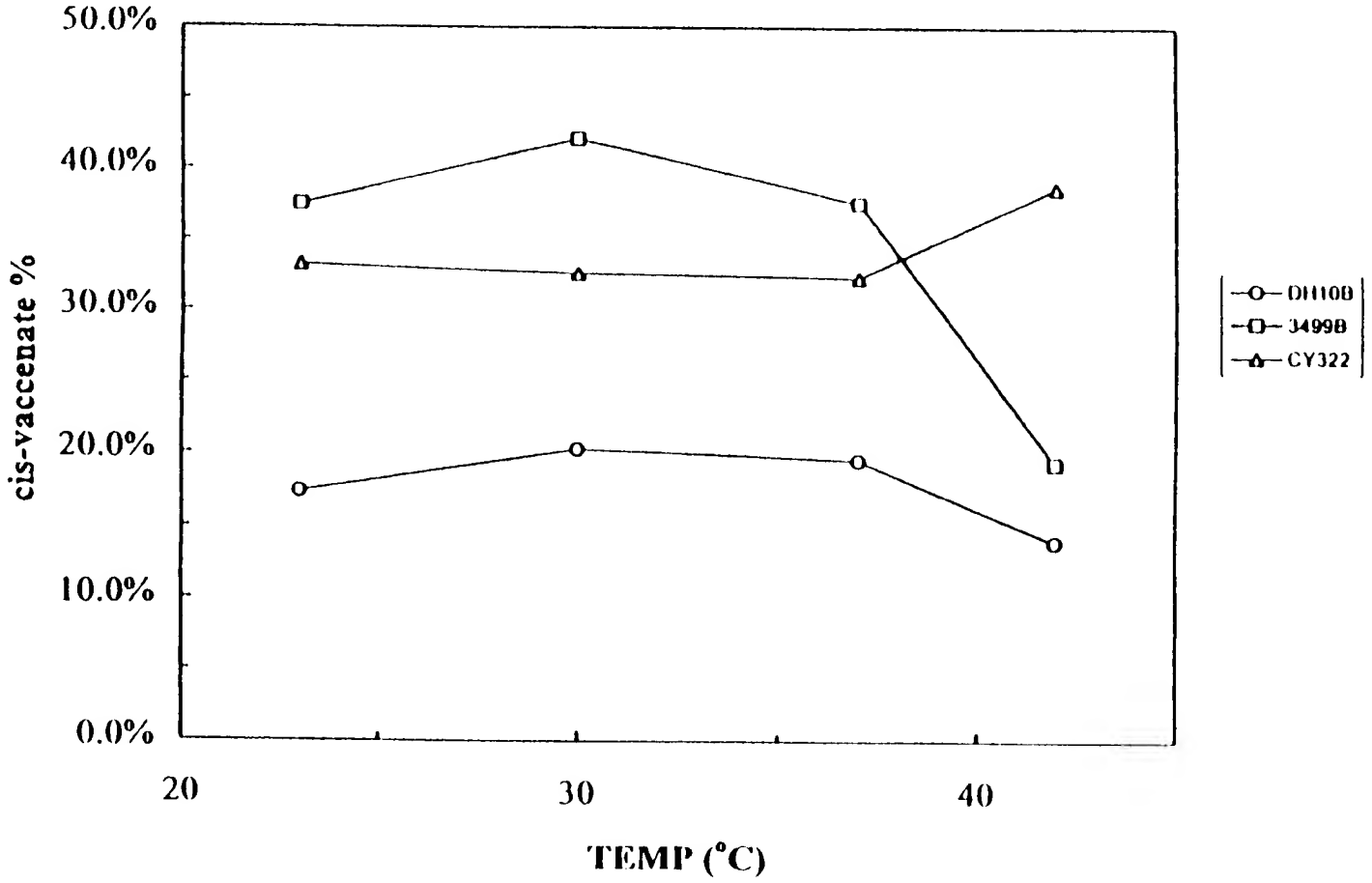

50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
cis-vaccenate %
20
30
40
TEMP (°C)
DH10B
34998
CY322

FIGURE 24

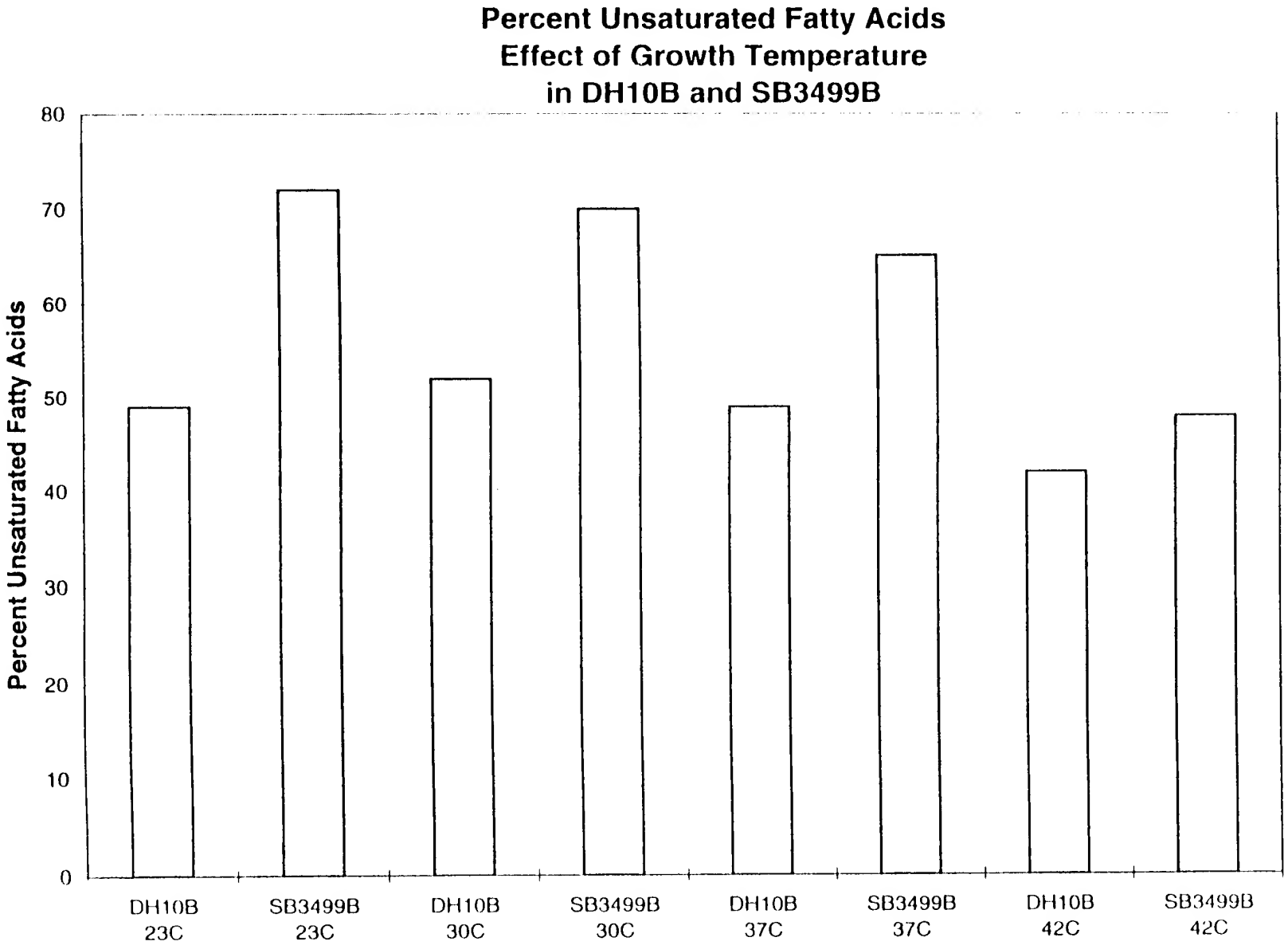


Figure 25

~~Page 1~~

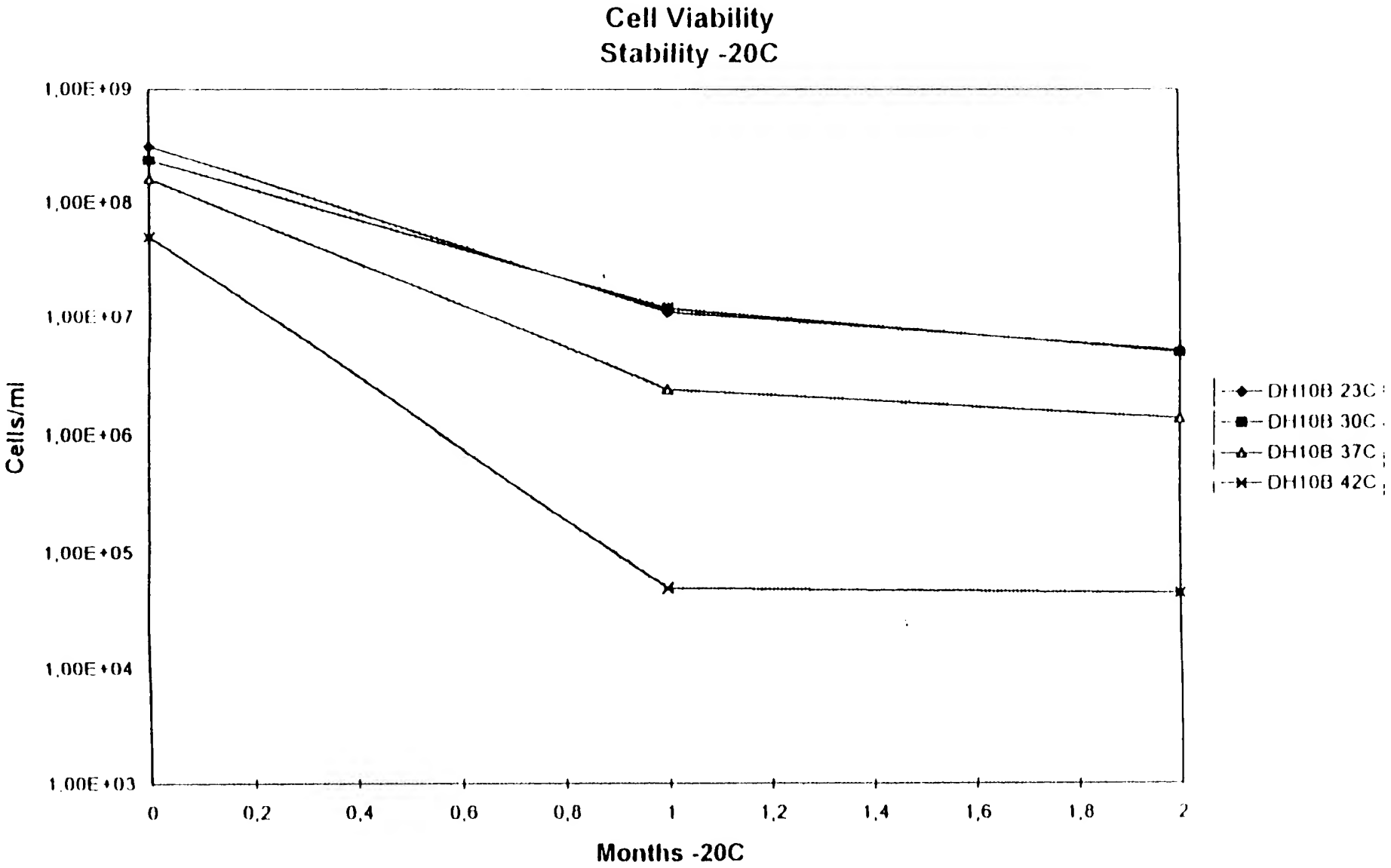

Cell Viability
Stability -20C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
1,00E+03
Cells/ml
0
0,2
0,4
0,6
0,8
1
1,2
1,4
1,6
1,8
2
Months -20C
DH10B 23C
DH10B 30C
DH10B 37C
DH10B 42C

FIGURE 26

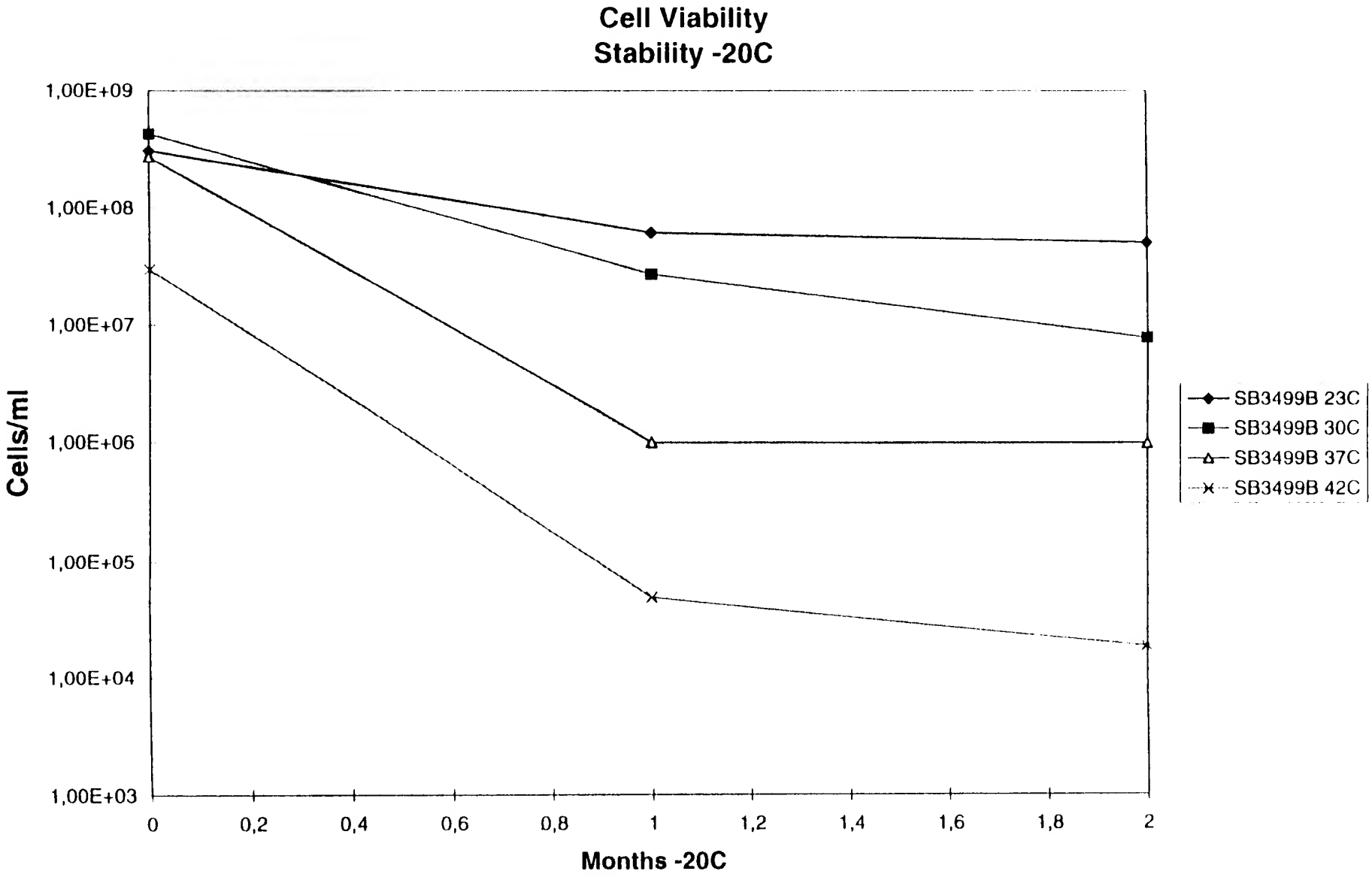
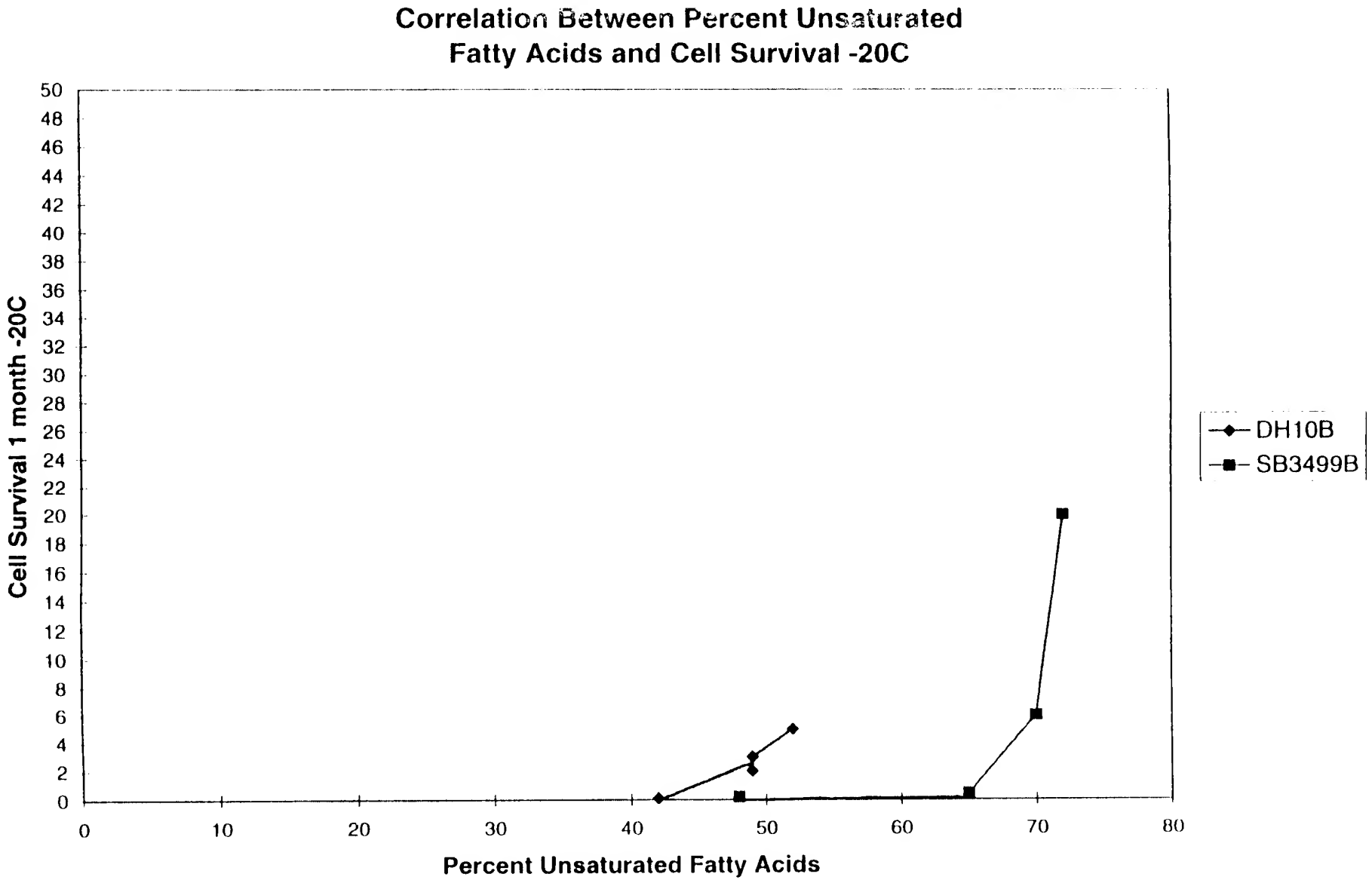

Cell Viability
Stability -20C
1,00E+09
1,00E+08
1,00E+07
1,00E+06
1,00E+05
1,00E+04
1,00E+03
Cells/ml
0
0,2
0,4
0,6
0,8
1
1,2
1,4
1,6
1,8
2
Months -20C
SB3499B 23C
SB3499B 30C
SB3499B 37C
SB3499B 42C

Figure 27



~~Page 1~~

Figure 28